SEPTEMBER 15, 1952 NEWS ISSUE

Electrical World

Price 35 Cents A McGRAW-HILL PUBLICATION

Ralph M. Besse, Cleveland Electric Illuminating Co, portrays Management at Work . . . Page 32

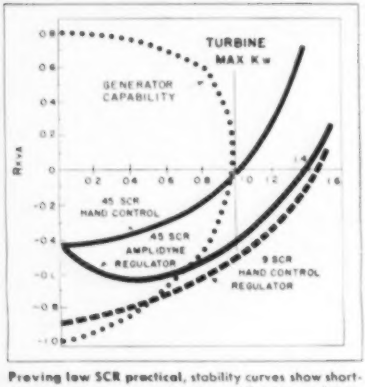
So Europe May Know How We Make Power . . . Page 16

Who Owns the TV Sets and Refrigerators? . . . Page 50

Smaller size of generator stator with low short-circuit ratio (right) is apparent between upright units being examined by G-E engineers J. H. Carter, J. B. McClure and E. D. Huntley, in factory machining area.

Lower Short-Circuit Ratios Pay Off With

HIGHER GENERATOR EFFICIENCY, LOWER COSTS



Proving low SCR practical, stability curves show short-circuit ratio can be reduced to .45 with amplidyne regulator and maintain essentially the same system stability as .9 SCR generator with manual control.

Faced with high capital costs in meeting today's rapidly expanding loads, several electric utilities are now showing marked interest in lower generator short-circuit ratios as a means of obtaining increased generator output with corresponding savings in the cost per kva.

The advantages of even a modest reduction from .9 to .7 in short-circuit ratio are dramatically illustrated in the two generator stator frames shown in the photograph above.

With modern amplidyne generator voltage regulators now being adopted on many systems, turbine-generators with effective short-circuit ratios of .5 or lower are entirely practical, without any significant sacrifice in system stability over previously used mechanically regulated generators.

By reducing SCR from .9 to .5, an additional 20 to 25 per cent more kva can be obtained from the same frame size. Total generator losses may be reduced by approximately 10 per cent. Thus substantial savings are possible.

A trend to lower short-circuit ratios is already under way. For a complete discussion of this new concept in generator design write for paper GER-630. General Electric Co., Schenectady 5, N. Y.

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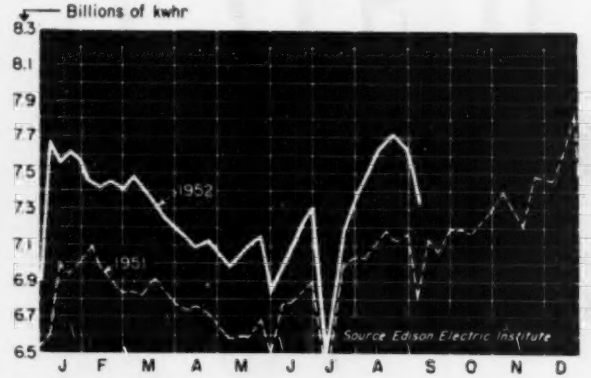
MORE POWER TO AMERICA

GENERAL ELECTRIC

VOLUME 138, NO. 9

September 15, 1952

Electrical World



Output Week Ended Sept. 6—7,324,127,000 Kwhr

Per Cent Change From Previous Year

	Total US	New Eng.	Mid. Atlan.	Cent. Ind.	West Cent.	South-east	South Cent.	Rocky Mount.	Pacific NW	Pacific SW
Sept. 6	+7.8	+8.6	+6.2	+6.1	+8.5	+11.4	+1.7	+15.8	+5.6	+11.8
Aug. 30	+7.0	+7.4	+3.5	+3.2	+7.6	+10.1	+9.8	+21.1	+7.4	+9.1
Aug. 23	+9.1	+7.4	+3.3	+6.4	+14.0	+15.4	+19.0	+9.8	+5.5	+6.9

Electric Power Statistics

		Latest Month	Preceding Month	Year Ago
Peak Load (Million Kw)	June	67.0*	65.9	62.4
Capacity (Million Kw)	July	77.96	77.46	72.70
Production (Billion Kwhr)	July	32.52	31.53	30.39
Hydro		8.74	9.16	8.28
Fuel		23.78	22.37	22.11
Fuel Consumption				
Coal (Million Tons)	July	7.90	7.66	8.08
Oil (Million Barrels)		4.38	3.91	4.43
Gas (Billion Cu Ft)		98.71	89.29	83.20
Sales (Billion Kwhr)	June	27.67	27.94	26.66
Residential		7.44	7.52	6.63
Commercial		5.00	4.74	4.55
Industrial		13.20	13.83	13.55
Other		2.03	1.86	1.93
Net Income Class A & B Companies ($ Million)	July	64.52	69.88	56.11
Estimated Dec. 52 Peak (Million Kw)	May	80.0	80.2	78.8
Kwhr per Residential Customer (12 Month Average)	May	2,078	2,066	1,909
Revenue per Kwhr Residential Service (12 Month Average)	May	2.78¢	2.79¢	2.85¢
Canadian Production (Billion Kwhr)	June	4.99	5.33	4.71

Business Statistics

FRB Industrial Production Index†††	July	192*	204	214
Gross National Product Annual Rate ($ Billion)	2ndQtr.	343.2	339.4	329.3
E. W. 5 Industry Production Index	June	96.9*	116.0	123.2
ENR Construction Cost Index††	Aug.	122.7	119.6	113.8
BLS Consumer's Price Index	July	190.8	189.6	185.5
NEMA Insulation Materials Sales Index†	June	500	517	610
NEMA Electric Appliance Sales Index†	June	258	219	284
NEMA Household Refrig. Sales Index†	June	192	128	154

* Estimated. † 1936=100 †† 1949=100 ††† 1937-39=100 (Unadjusted)

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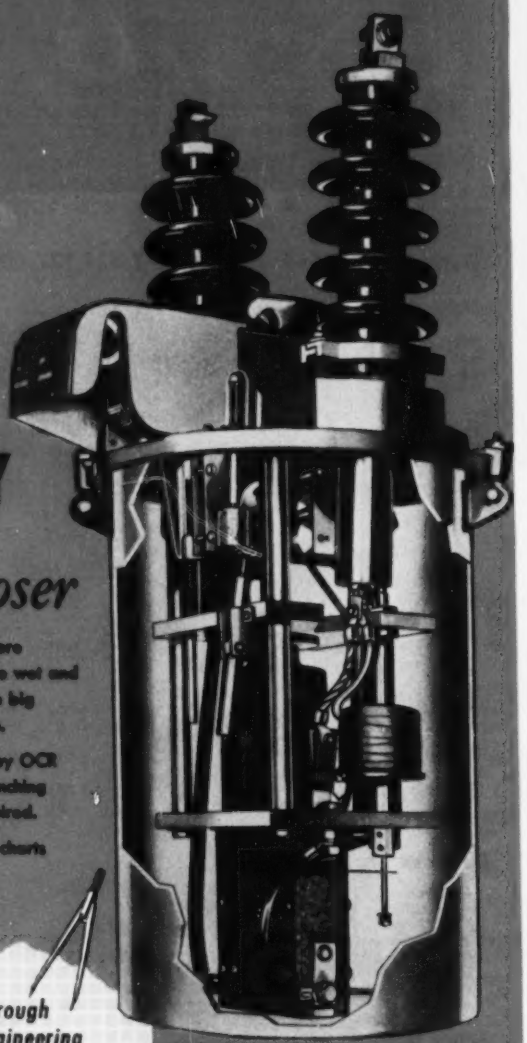
FOR YEARS TO COME...

the Big AUTOMATIC KEARNEY

Oil Circuit Recloser



A new feature that makes the Kearney OCR even more efficient is the extra large oil filled bushings. 60-cycle wet and dry withstand values exceed NEMA standards. These big bushings also assure elimination of radio interference.

Another money-saving advantage of this BIG Kearney OCR is its greater oil capacity. This means better arc-quenching ability, fewer oil changes and less maintenance required.

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THE ELECTRICAL WEEK

The Issue's News Highlights—Gov Adlai Stevenson wants to see the federal government develop power projects where private utilities are "unwilling or unable" to take them on. By recommending that the government develop phosphate resources in the Pacific Northwest, he inferentially supported federal construction of Hells Canyon Dam.

Henry H. ("Joe") Fowler is appointed Director of Defense Mobilization, the post Charlie Wilson vacated in a huff last April after disagreeing with Truman on steel.

Latest from Washington—Mobilizers continued discussing a third round of aluminum expansion last week . . . One large turbine manufacturer estimates steel strike will mean no more than a two-month slippage in deliveries . . . Plan may be put forward next week to give utilities a priority position in obtaining steel, but there is no indication now that top defense planners will accept it.

Power supply in southern Texas is a problem, but since peak comes in summer the worst seems to be over for this year . . . FPC will decide by mid-October whether to dismiss applications by pipeline companies for permission to bring Canadian natural gas into Pacific NW.

Construction—Bureau of Reclamation spins first of four 71,250-kw generators at Hungry Horse Dam in Montana.

Financial—Alpena Power Co has placed privately through Blyth & Co, $1.7 million 3¾% first mortgage bonds due in 1982 . . . Rome Cable Corp will pay Oct. 1 to stock of record Sept. 11 a quarterly common stock dividend of 30¢ per share versus 25¢ previously.

Labor—Derby G&E workers return to work after one-day strike as company and UWUA-CIO agree to submit all disputed issues to State Board of Mediation and Arbitration. Strike took place after UWUA rejected an agreement reached at 3 a.m. on Sept. 8 before Rev Joseph Donnelly, chairman of SBMA. Agreement would have given workers 13¢ an hour increase plus 2¢ an hour equalization raise for a minority of employees. Union wanted 40¢ an hour wage hike.

Union Electric of Missouri grants about 7% wage increase to 4,000 employees of which about 3% has been placed in effect retroactive to July 1 and 4% is subject to WSB approval. . . Fall round table conference of EEI's Industrial Relations Committee will be held at Sheraton Hotel, St. Louis, Mo., on Nov. 17-19.

Rates—Union Light, Heat & Power will appeal to Kentucky Court of Appeals recent ruling of Franklin Circuit Court Judge W. B. Ardery which orders company to refund rate increases in effect from March 1 to Aug. 26. However, no refunds will be made until court decision has been rendered. Before rate became effective, PSC objected that a new state law prohibited raising of rates without giving commission time to consider them. Company appealed to the court, posted a bond to cover any possible refunds, and placed higher charges into effect.

From East North Central—Illinois Power, Central Illinois Public Service, and Union Electric of Missouri reach pooling agreement for about 2 million kw of capacity (more than half in Illinois), Central PS's Pres Marshall S. Luthringer has reported. This pooling will make available all the reserve capacity of the three companies, he said. The agreement is subject to Illinois Commerce Commission and FPC approval . . . Champaign, Ill., will draw up a modernized electrical code along the lines of one now in effect in Urbana.

From the Southeast—A ten-year contract has been signed whereby the municipal plant of Jacksonville, Fla., will supply power to Green Cove Springs.

New York State E&G gets temporary injunction restraining city of Plattsburg from pushing condemnation proceedings against two hydro plants of Eastern New York Power Corp.

Speaking before Maryland Utilities Association, Edward Hopkinson, Jr., of Philadelphia, a partner of Drexel & Co said that if the capital for utilities is to be obtained on reasonable returns, there must be adequate earnings to protect investors and permit stockholders to obtain dividends comparable to what they could get by investing in other types of industries.

Addressing same group, Elmer H. Jackson, managing editor and general manager of "Southern Maryland Times," Annapolis, said in many cases, "private power companies who have paid large taxes have been driven out of business by government units which are subsidized by your taxes and mine—thus we have a taxeater instead of a taxpayer."

An examination of Missouri PSC records in valuation proceedings indicates a new policy of deducting tax reserves of public utilities from cash working capital allowances in ratemaking valuations.

Bellaire, Mich., citizens will vote Sept. 24 on a recommendation of village council to sell its system to Consumers Power Co for $87,500.

Testifying before International Joint Commission on St. Lawrence Seaway plan, Quebec's Welfare Minister J. M. Paul Sauve says that Quebec desires to cooperate in a plan by which Ontario and New York State would jointly undertake power development on St. Lawrence, but was "firmly convinced" that the commission lacked the "jurisdictional or court powers" to rule on some of the problems raised.

Ohio Edison Co and Port Clinton, Ohio, agree to new ten-year contract which will save consumers, principally in homes and small businesses, about $20,000 a year. Contract replaces one that will expire on Jan. 3, 1954.

Congratulations—Association of Illinois Electric Co-operatives elects Clay Trimble, of Montrose, president . . . Huge H. Lenhart, Cheyenne Light Fuel & Power vice-president is elected president of Rocky Mountain Electrical League to take office on Jan. 1.

THE ELECTRICAL WEEK

CONTINUED

At Illuminating Engineering Society's national technical conference in Chicago last week, IES's Pres S. G. Hibben estimated that one school child out of six cannot see well enough to learn properly and because of this fault school children suffer some 85,000 eye mishaps a year. He also pointed out that 20% of nation's young men called for military duty cannot (without "eye" crutches) see well enough to fire a rifle or read an instrument or observe a night signal. H. H. Magdsick, illuminating engineering with General Electric at Nela Park, received the 1952 IES Gold Medal.

More from Washington—Depa is almost certain to step in with a limitation order to conserve electric power in the drought-ridden Pacific NW . . . Average coal stockpile at electric utilities will last about 146 days . . . A United Nations commission is studying possibility of using wind power to generate electricity in Israel.

IN THE INDUSTRY

Right now the only way to produce power from nuclear sources at a competitive cost is to sell by-product plutonium to the government for military purposes.

That does not mean nuclear power prospects are dim. Look at it this way, says Alfonso Tammaro, of the Atomic Energy Commission:

The government needs plutonium badly—it's vital in producing atomic weapons. The country needs all the power it can get. So why shouldn't the Atomic Energy Commission work in partnership with private industry to develop electricity from nuclear sources?

Some industry teams studying the problem are already interested in a program supported partially by themselves and partially by the government, Tammaro, manager of AEC's Chicago Operations Office, told the American Society of Mechanical Engineers last week.

Joint Financing . . . Under a mutual approach, AEC would finance construction of the reactor and chemical processing plant and the industrial firm the power plant equipment. The commission would give the industrial concern unspent fuel elements and buy from it spent fuel elements containing plutonium. AEC would do the chemical processing.

"The economics at present should not discourage interest," Tammaro commented. "Emphasis has been placed just recently on production of economical power. All new developments are expensive in their early stages. There are many new developments and processes being studied that may well lead to very satisfactory results."

Cost of the reactor isn't the only economic factor, he pointed out. Where coal, oil or gas is hard to get, consider the economic plus of "burning" one pound of plutonium in place of 1,800 tons of coal. The heat-producing core of the experimental breeder reactor at Arco, Idaho, is about the size of a regulation football.

This is the type of reactor that can be used to produce power and byproducts for the military. For the first time in a public announcement, Tammaro gave some details of its construction and operation:

Heat energy is removed from the machine by liquid sodium potassium alloy leaving the system at a temperature of 625 deg F. Superheated steam of 400 psi is generated.

Surrounding the football-sized core is a "breeding blanket" where plutonium is produced by absorption of neutrons by the U-238 atoms. The material in this blanket, like the fuel, is suspended in a potassium coolant in a cylindrical tank. Surrounding the tank is a reflector to turn back neutrons that would otherwise escape. Around the whole is a radiation shield of concrete and lead.

The coolant flows through the reactor tank by gravity. Because it becomes radioactive, it is pumped to a shielded primary heat exchanger and then back to the reactor. A second sodium-potassium system removes heat from the shielded exchanger and carries it out to a secondary heat exchanger. The second system, which is not radioactive, produces steam in the exchanger. The steam flows through the 250-kw turbogenerator system to produce electricity.

After the Carbon Fuels? . . . Tammaro points out that as carbon fuels used in power production run out the industry must look for a substitute. Only one is ready to go to work—the atom.

The possibilities of nuclear power are real and a number of power companies have already decided they had better get in on the ground floor. Other utilities might do well to consider whether they should go and do likewise.

TECHNICAL NOTES

ARCHER E. KNOWLTON

World water power is estimated to total 5,610,000,000 kw. Asia has 40%, the Americas 32%, Africa 20%, Europe 3½%.

Traveling grate stokers have operated for years with air preheated to 400 F or more with no lubrication difficulties.

Pneumatic mechanisms usually require tripping current that is in excess of the closing current.

Clutch for delicate mechanisms is based on the bending of a piezoelectric crystal when subjected to 400-500 volts dc. Response is in fractions of a millisecond.

Reactor with closed iron core constitutes a practical solution for applications requiring a rapid increase of reactive kilovars with moderate increase in voltage.

Minimum requirements for speakers for a power plant communication system should comprise 22 locations with an average of 11 watts (total 242). Complete coverage generally would embrace 41 locations and a total wattage of 406.

Cork-gasketed couplings for fiber conduit are used to keep seepage out. Concrete envelope is vibrated during pouring for density and imperviousness.

Helicopter was used by steeplejack to hang at the top of a smokestack the hook for his painting tackle.

Reheat was initiated in Great Britain in 1920 with 20 Mw turbogenerators working at 450 psi 650/500 F.

Stevenson Comes Out for Public Power

Governor endorses federal development of natural resources where private enterprise is unwilling or unable to do job

Adlai Stevenson, after three weeks of consultation with Interior Secretary Chapman, has come out for public power with reservations and the preference clause without reservations.

Last week in Seattle, the heart of public power country, Stevenson told his audience: "Hard common sense concludes that where private enterprise is unable or unwilling to develop our resources, the government should."

Ike Uncommitted . . . General Eisenhower, his Republican opponent for the Presidency, has made no such flat declaration on federal power policy. With Stevenson's stand on the record, it will be hard for the General to remain uncommitted on the issue when he swings into the Far West. The Republican candidate has indicated he leans more toward private development of resources.

The Illinois governor attributed the rapid growth of the Northwest in large part to federal expenditures for development of natural resources. He denied that funds spent for projects like Grand Coulee, Bonneville, and McNary Dams were a waste of the taxpayers' money.

"An investment," he pointed out, "made on behalf of the public is not necessarily money poured down a rathole—or out here I should say money over the dam."

The result of public investment, he said, has been water for crops and power for homes, farms, and industry in general.

Aid to Private Enterprise . . . Far from stifling private enterprise, Stevenson said, these activities by the federal government have promoted and strengthened private business in the Northwest and by enriching one section of the nation have enriched the whole nation. The Democratic nominee asserted that if government had not gone ahead with its hydro projects on the Columbia they would not have been built because they were beyond the capacity of private enterprise to build. He concluded that government must step in to develop resources where private enterprise is unable or unwilling to do so.

Favors Preference . . . In the matter of preference in the sale of public power, Stevenson stood solidly behind the government's present policy of selling first to cooperatives and public bodies. The aim of these policies, he said, is to achieve the widest distribution of public power among domestic and rural users at the lowest possible rates. These policies, he noted, have worked well in the Northwest.

Admitting that no two regions are alike and a particular adjustment between public and private power cannot be followed everywhere, the Presidential aspirant declared however that "the principles are the same everywhere; and the benefits of public investment must accrue to the general public."

More Cooperation . . . At several points in his speech, Stevenson stressed that there must be better cooperation between private companies and government agencies who deal with natural resources. Although outlining his beliefs on the government's role in developing resources, he emphasized that he felt the job of using the country's resources was "very largely a job for private action."

Governor Stevenson indicated he would not follow any set pattern in making his decisions on public power if elected President. When asked if he favored a TVA-type authority in the Columbia River Basin he told a group of editors at Portland, Ore., that what was desirable in one area might not work in another. "I wouldn't say for a moment that TVA was the solution for the Columbia River problems."

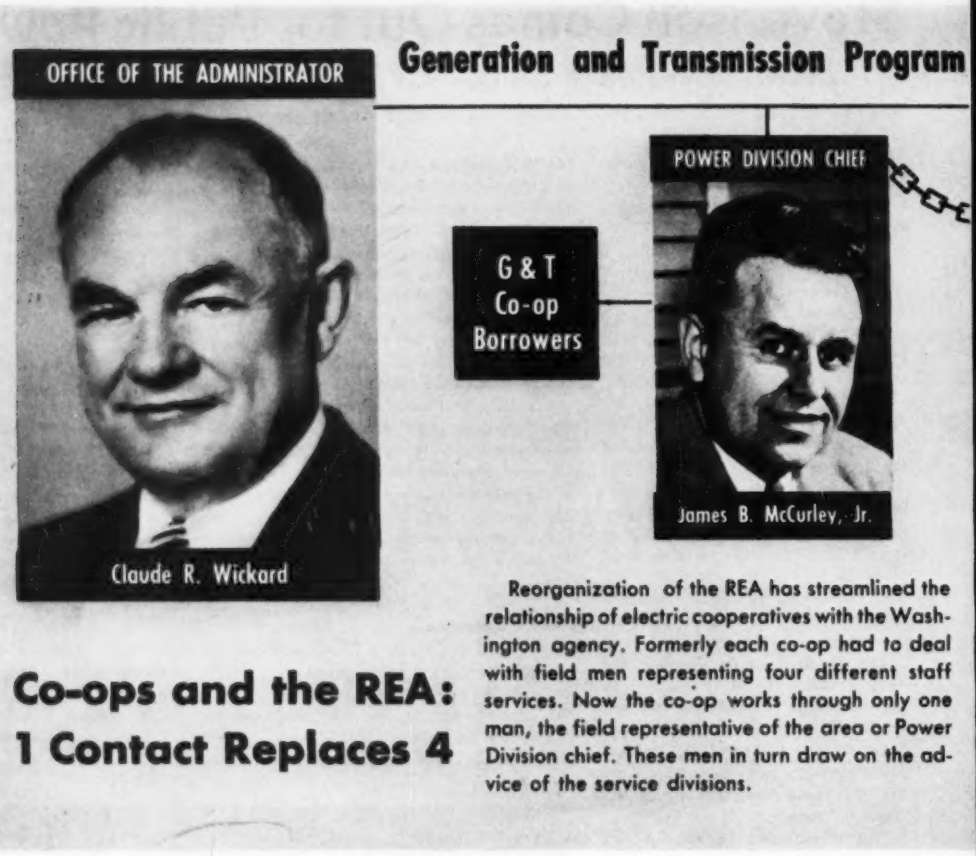
Partners . . . In Cheyenne, Wyo., last week, Stevenson said he believed a major factor in the growth of the New West was the free enterprise system.

"People sometimes talk," he said, "as if government and free enterprise were mortal enemies, and in this part of the country you know they are working together as partners.

"It takes wise government policies to develop these resources in the interest of all the people. The Democratic party knows, as you know, that sound public conservation policies provide the best foundation for free enterprise."

Waiting for 'Porgy' in Ohio

Not "Porgy and Bess," which is in Europe now, but "Porgy Wins a Prize," a marionette show put on by Ohio Electric Utility Institute at the recent state fair. The show, with talking animal marionettes, emphasized the importance of electricity on the farm. It was part of an exhibit pointing out, among other things, that capacity of the institute's nine companies has doubled since 1946.



Co-ops and the REA: 1 Contact Replaces 4

Reorganization of the REA has streamlined the relationship of electric cooperatives with the Washington agency. Formerly each co-op had to deal with field men representing four different staff services. Now the co-op works through only one man, the field representative of the area or Power Division chief. These men in turn draw on the advice of the service divisions.

Agency Plans to Give Borrowing Co-ops

At regional meetings this month and next rural electric cooperative leaders hope to get a clearer picture of the sweeping reorganization of Rural Electrification Administration which went into effect July 1.

With two months of operating experience under the new setup, the co-ops now have a pretty good idea of their increased responsibilities as REA borrowers. But many of them have specific problems in dealing with new men and new divisions at the 17-year old government agency.

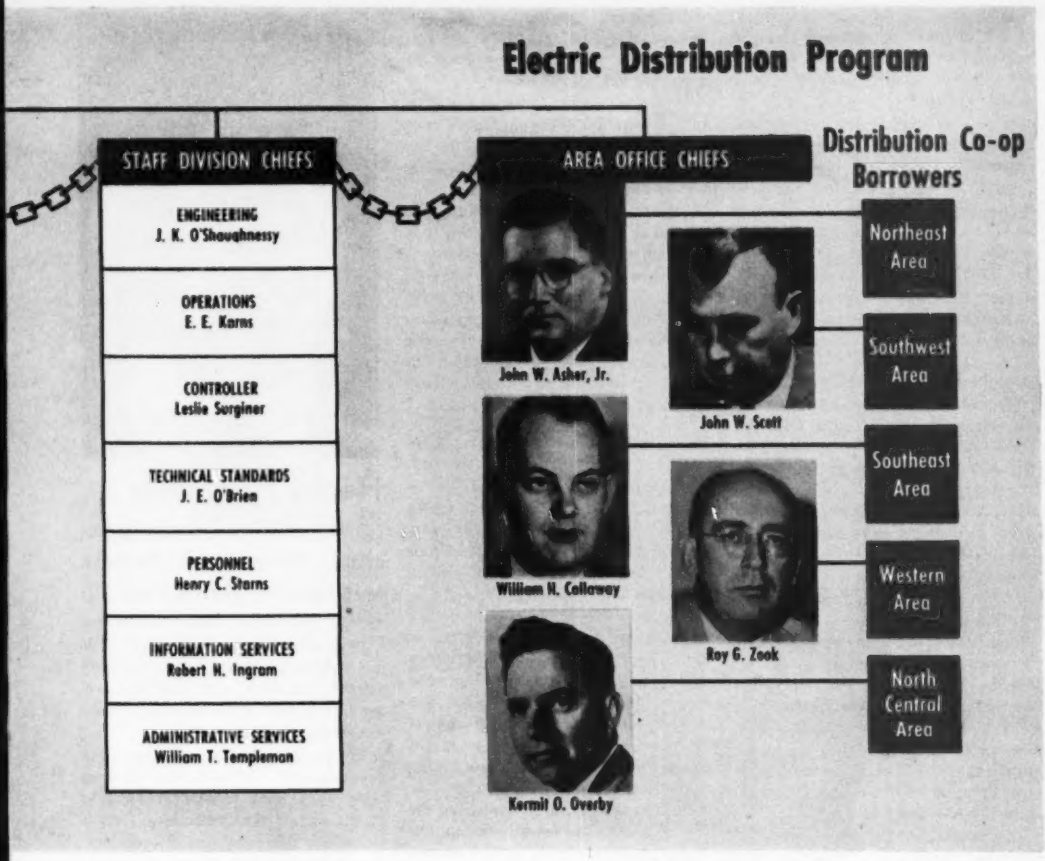
Round of Speeches . . . To help solve some of these problems and get a first-hand reaction from the co-op men, REA Administrator Claude Wickard is making the rounds and will speak at five of the ten regional meetings throughout the country. From these discussions he will gather ideas for ironing out some of the rough spots that still exist in the revamped REA organization.

Main purpose of the changeover is to shift emphasis from government electrification loans to telephone loans. With the streamlining, Wickard intends to keep the electrification program rolling along with some 200 less full-time employees than during the first half of this year. This leaves less than four hundred REA employees who are giving full-time to loans and other services for rural electric borrowers. Approximately 400 other employees at REA are working part-time on electrification matters.

Single Contact Point . . . Under the new setup (see chart above) co-op borrowers will have a single contact point with REA. This will be the general field representative. The field representative will then work directly with the area office in Washington, which can call on any of the staff divisions for specialized aid. This line of communication serves for all co-ops which distribute power over rural lines.

Generation and transmission co-ops deal directly with a field representative of the new Power Division. The division in turn calls upon any of the staff divisions for specialized help.

This is in sharp contrast to the bulky organization which served electric co-ops up until early this year.



More Independence—and Responsibility

Instead of the five present area offices, REA worked through ten regional offices. Instead of a single contact point with the co-op, REA formerly had field men representing four divisions—Loans, Engineering, Management, and Auditing. Each of these field men dealt directly with the co-op.

Plenty of Headaches . . . It is no wonder, then, that the co-ops are having a rough time getting accustomed to the new system. New faces and new procedures mean a lot of headaches to co-op management which knew the ropes in the old organization. Sure, the new organization is more simple, say the co-ops, but that doesn't necessarily mean it is more efficient.

While REA reduces its electrical program personnel and simplifies its organization, it also pushes more responsibility to the individual co-op. For the co-op it means more independence, but also a heavier work load.

REA's Duties . . . Like most lending institutions which have a big stake in the prosperity of their borrowers, REA will continue to keep a hand in co-op affairs. Before a co-operative can take final action, REA must approve:

- Selection of manager, consulting engineer, certified public accountant, and attorney who are to be employed by an REA borrower.
- Retail rate schedules.
- Power supply contracts.
- Sale of mortgaged property when the transaction involves the transfer for sections of the system.

As in the past, the government agency requires borrowers to submit operating reports, expenditure reports and financial requirements statements for advance of funds.

Co-ops' Responsibilities . . . But co-ops must now move in to take over a large share of the responsibility formerly exercised by REA. Among the new duties:

- When co-ops have reached certain managerial and financial standards, they must assume the responsibility and cost of hiring a certified public accountant to audit their general accounts.

● Borrowers must take over many of the engineering services formerly furnished by REA.

● Instead of an REA review of proposed construction, qualified co-ops may now go ahead with construction and afterward hire an independent engineer to determine whether REA standards have been met.

● Estimate work orders on smaller improvements no longer requires REA approval.

● Except in exceptional circumstances, REA approval is not required for construction contracts awarded through competitive bidding.

Co-ordinators . . . Key men in the new organization are the five area directors and the chief of the Power Division. They will coordinate all of the services which go to the co-op. Along the general field representatives, they will recommend loans to be made and decide on distribution of other services. This leaves the administrator and his immediate staff free for policy-making.

Initial impact of the reorganization hit REA employees hardest. The wave of transfers appeared to be demotions for some officials and put employees in jobs they did not like. But during the two months under the new setup, most REA jobholders have found themselves less hurt than they expected. Slowly they are coming to accept the new situation, and a great many of them are beginning to like it.

Little Enthusiasm . . . Borrowers were affected less directly, but they still have their gripes. Administrator Wickard believes they will gradually come to accept the reorganization after receiving a full explanation.

National Rural Electric Cooperative Association, lobbying organization and spokesman for many of the co-ops, has shown little enthusiasm for the change. The organization does recognize that some reshuffling was needed if the telephone program is to progress without expanding REA.

Commenting on the change, NRECA said, "Mr Wickard acted, and should be applauded regardless of whether all are agreed that the reorganization was exactly to their own way of thinking, to meet these problems squarely and realistically."

More Telephones . . . REA now intends to push the telephone loan program, which Congress authorized it to administer in 1949. There has been criticism that this program is lagging. Under the reorganization there has already been a noticeable step-up in telephone loan activity.

But there is a more basic reason for streamlining the electric program at REA. Experts at the agency have long contended they will eventually work themselves out of a job. While this is not entirely accurate, it does appear the rural electrification program has reached its peak. In the years immediately ahead there will be a gradual decline in electrification loans, say the experts. This calls for a tightening up of the organization, and this is now in progress.

EACH OF THE NEW AREAS combines two former REA regions. Each distribution co-op within the bailiwick of an area office will deal with it through a single REA field representative

Henry H. Fowler . . .

. . . is picked by Truman to become Director of Defense Mobilization, Wilson's old job

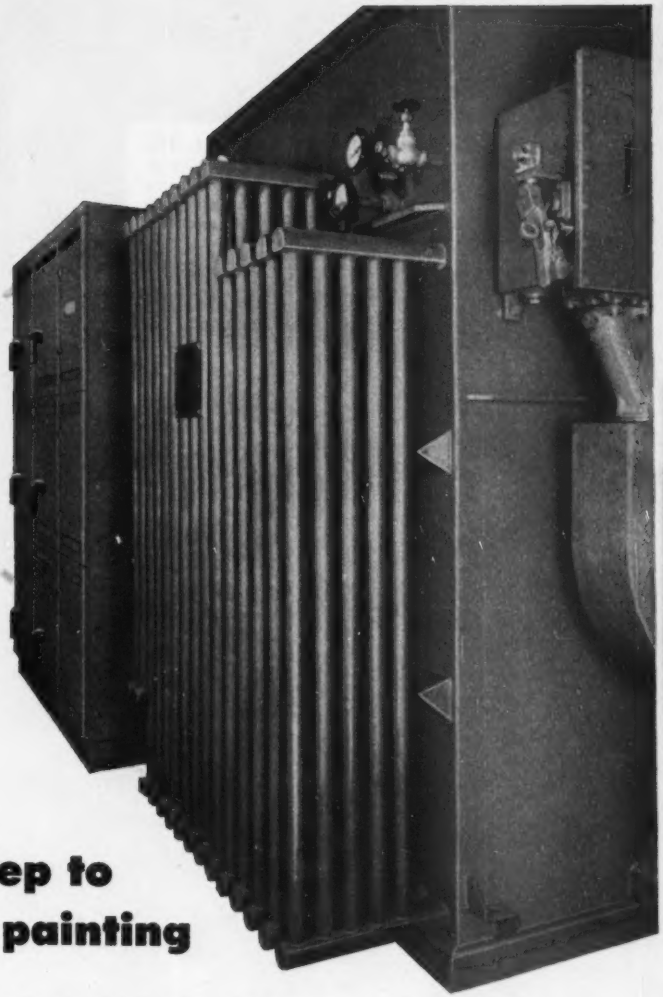
"Joe" Fowler, a high government defense official since September 1951, has replaced Presidential Assistant John R. Steelman, who had been acting ODM chief since Charles E. Wilson's resignation last April.

Fowler came to the top rung in the government's defense mobilization setup after three months as Defense Production Administrator, eight months as Administrator of the Commerce Department's National Production Authority, and four months as NPA Deputy Administrator. In his new post, he will have over-all responsibility for price, wage, and rent controls, in addition to production controls. He will continue as DPA administrator, but will resign as head of NPA. Commerce Secretary Sawyer will name his successor this month.

Fowler's promotion is in line with new policy to integrate ODM and DPA more closely, while shunting NPA's basic materials-allocating functions off to the Commerce Department. Technically NPA has always been a Commerce Department agency. But that's been only for housekeeping purposes. Fowler—and his predecessors, William H. Harrison and Manly Fleischmann—were more directly responsible to the President than to Sawyer.

A long time Washington lawyer, Fowler plans to return to private practice before the end of the year.

Wagner
TRANSFORMERS
...the choice of leaders in industry



first step to better painting

One of the reasons why modern paints form a better film, level better, and have longer life is due to new methods of processing linseed oil. Some are polymerized to strengthen their molecular structure . . . like Archer "Pol-mer-ik," an Archer-Daniels-Midland Company product.

One of the first steps in processing Pol-mer-ik is extracting the oil from the flaxseed . . . and, like most steps in modern manufacturing, this operation requires the use of electricity delivered at the right voltage for its purpose through a unit substation.

The 1500 kva Wagner Unit Substation Transformer pictured above, furnishes power to operate the vegetable oil expellers at Archer-Daniels-Midland's Minneapolis plant.

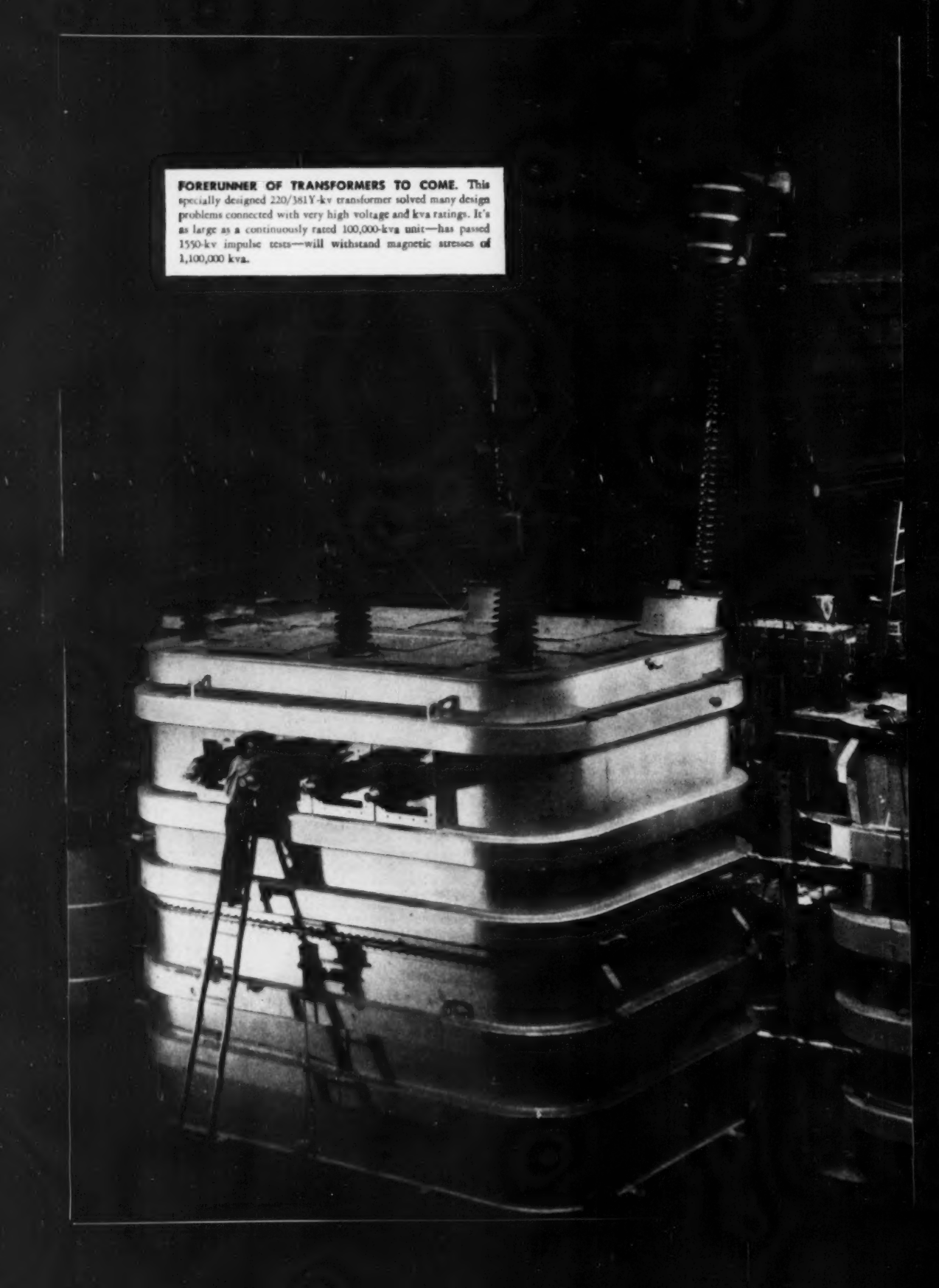
Wagner Transformers are an important part of the equipment of many large industrial plants because they give completely dependable service. Wagner engineers are qualified to specify the correct transformer for your needs. Consult the nearest of our 32 branch offices, or write us.

Wagner Electric Corporation
6456 Plymouth Ave., St. Louis 14, Mo., U. S. A.

Wagner Electric Corporation

ELECTRIC MOTORS • TRANSFORMERS
INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

WT52-3



FORERUNNER OF TRANSFORMERS TO COME. This specially designed 220/381Y-kv transformer solved many design problems connected with very high voltage and kva ratings. It's as large as a continuously rated 100,000-kva unit—has passed 1550-kv impulse tests—will withstand magnetic stresses of 1,100,000 kva.

"CONCENTRIC LAYER" transformers withstand short-circuit forces of 1,100,000-kva duty

Units, impulse-tested at 1550 kv full wave, are installed in General Electric's new Switchgear Development Laboratory at Philadelphia.

Transformers for repeated short-circuit duty. Two 220,000/381,000Y—7750/15,500-volt transformers, connected to special short-circuit generators, supply the power that permits the new Switchgear Laboratory to simulate actual system faults. Each transformer can deliver 1,100,000 kva for a period of 10 cycles . . . and repeat this performance 15 times an hour.

"Concentric layer" winding solves short-circuit problems. The extremely severe duty requirements of these transformers were readily satisfied by the "concentric layer" winding. In this design, the conductor is wound in successive layers arranged concentrically and connected in series.

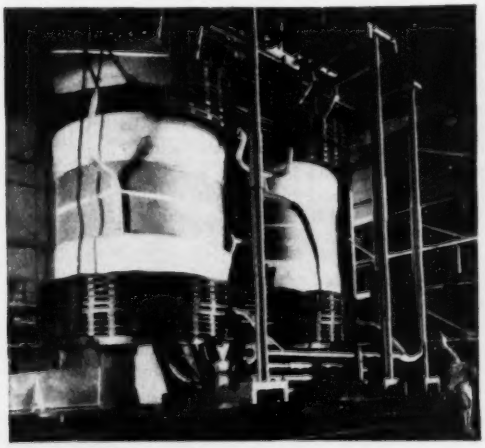
High short-circuit strength is inherent since major magnetic forces (as high as 2800 tons) are radial and well within both the tensile strength of the high-voltage conductors and the compressive strength of the cylinder on which the low-voltage coil is wound.

Impulse strength to withstand 1550-kv test was achieved readily with the "concentric layer" design. Voltage stress between layers is limited to the voltage of one layer since adjacent layers are connected in series.

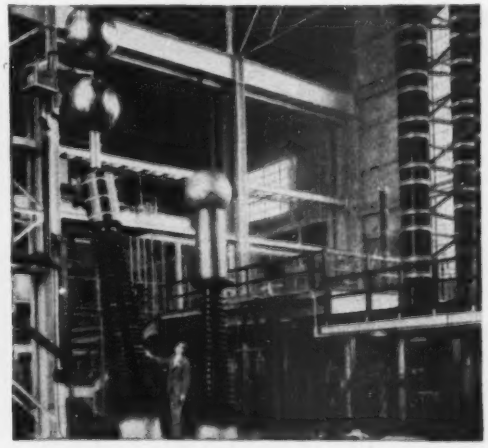
The cylinders of insulation between the layers are flanged over the ends of the winding to eliminate creepage in the direction of high electrical stress.

Uniform distribution of impulse voltages throughout the windings is assured by complete electrostatic shielding.

"Concentric layer" transformers for your system. These testing transformers, while designed to meet unusual requirements, demonstrate the excellence of "concentric layer" windings for high-kva, high-voltage service. If you are using or contemplating voltages 161 kv and above, you may wish more information on this design. Ask your local G-E apparatus sales representative for Bulletin GER-129, or write Section 401-31, *General Electric Co. Schenectady 5, New York.*



INHERENT SHORT-CIRCUIT STRENGTH of "concentric layer" design results from circular shape of coils and a highly developed winding technique. Conductor wound "on edge" provides maximum bearing surface for withstanding short-circuit forces.



282% OF RATED VOLTAGE. Test man sets 100 CM gaps for induced voltage test at 282% of rated voltage. Electrostatic shielding between all high-voltage-winding layers assures uniform impulse distribution in spite of the numerous tap leads brought outside the transformer.

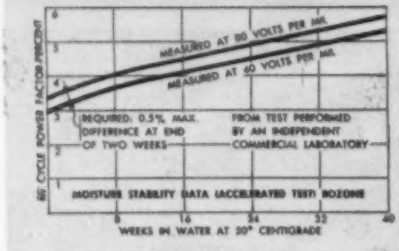
GENERAL ELECTRIC

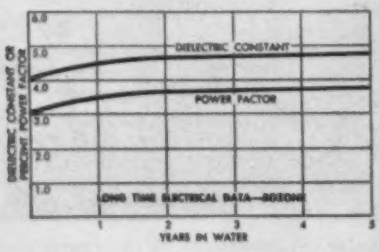
500,000 CM stranded single conductor RoZone insulated, RoPrene sheathed power cable . . . 5000 volts.

Rome RoZone®

Superior Ozone-Resistant Insulation Deserves Your CONFIDENCE

As indication of their behavior in service and conformity to specification, insulated cable specimens are measured electrically for moisture absorption after long-time immersion in temperature controlled water baths.


60 CYCLE POWER FACTOR PERCENT
MEASURED AT 80 VOLTS PER MIL
MEASURED AT 40 VOLTS PER MIL
REQUIRED: 0.5% MAX. DIFFERENCE AT END OF TWO WEEKS
FROM TEST PERFORMED BY AN INDEPENDENT COMMERCIAL LABORATORY
MOISTURE STABILITY DATA (ACCELERATED TEST) ROZONE
WEEKS IN WATER AT 50° CENTIGRADE



What Its Exceptional Moisture Resistance Means To You

Q: What effects can moisture have on cable insulation?

A: The presence of moisture absorbed in cable insulation alters its electrical character and, depending on the type of insulation, may effect those characteristics most important for service . . . causing failure.

Q: Can the effects of moisture be predetermined?

A: Yes . . . by long-time electrical measurements or by recently developed electrical stability tests. Since it is not only a question of "how much" moisture is present but, even more important, its location or distribution within the insulation, an electrical test is considered to be the only truthful yardstick of performance.

Q: Does RoZone resist moisture satisfactorily?

A: Yes. Experience and long-time test data have proved RoZone has exceptional *electrical stability in the* presence of water and its performance is not impaired by exposure to water.

Q: Where could cable insulation become appreciably exposed to water during service?

A: In submarine service, buried directly in the earth, or in wet ducts or conduit. Water is present almost everywhere and may condense in raceways or on cables suspended in air. RoZone is recommended for any of these applications.

It Costs Less to Buy the Best

RoZone is approved and accepted by leading utilities, industrials and consulting engineers.

ROME CABLE
Corporation
ROME · NEW YORK
and
TORRANCE · CALIFORNIA

ROME CABLE ROME, N.Y.

BPA Sheds Load

Interruptible cut off to aluminum plants as Columbia stream flow drops to near-record low. Metal output off 940,000 lb daily.

Bonneville Power Administration cut off all interruptible power in the Pacific Northwest area—388,000 kw—on Sept. 5 as stream flow in the Columbia River approached a record low mark.

Curtailment in aluminum production resulting from the cut is estimated at 940,000 lb. Kaiser Aluminum Co, Aluminum Co of America, and Reynolds Metals Co all have had to reduce output at their plants sharply because of the power cut.

Comes Early . . . The power shortage this year comes two weeks earlier than a similar shortage last year, with stream flow of the Columbia at Grand Coulee Dam recorded at 68,000 sec ft Sept. 1 against 92,000 sec ft for the same date last year.

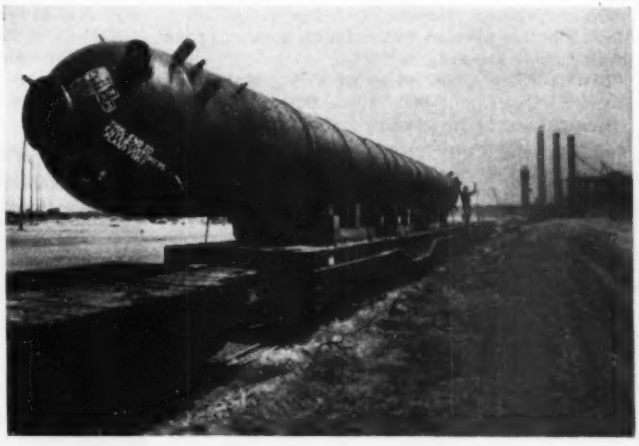
"Continuous stream flow conditions have come dangerously close to the critical year figure of 1936-37, and, at some points on tributary streams, have even come under that mark," said BPA administrator Paul J. Raver.

"Our ability to meet the present situation," he continued, "results from our having made contracts with certain industrial customers which permit instantaneous interruption of service during emergencies without it affecting the general economy of the region. If the situation continues, there is no question but that certain firm power commitments will be threatened with some curtailment. We cannot see our way clear to a solution of the situation until Northwest storage and generation facilities catch up with regional requirements."

Brownout? . . . J. J. Mangan, Spokane area manager for Bonneville, reported that a conference probably would be held in Washington, D. C., to consider plans for a brownout and possible additional power cuts. This would extend the curtailment into the area of firm power commitments. The Spokane area now draws about 205,000 kw in interruptible power from Bonneville, most of it going to Kaiser plants.

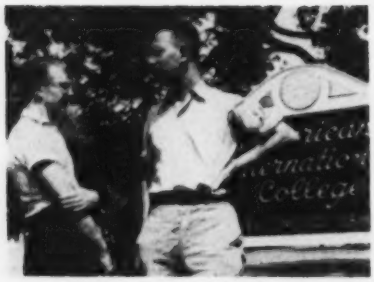
Wilson to Direct Crusade Drive

Charles E. Wilson (left) is congratulated by Henry Ford II after his appointment as national campaign chairman of the 1952 Crusade for Freedom. Ford is the Crusade's national chairman. Wilson, former director of the Office of Defense Mobilization and ex-president of General Electric Co, actively will direct this year's drive to seek financial support to expand activities of Radio Free Europe and Radio Free Asia. The drive will run from Nov. 11 to Dec. 15.



Long Drum for the Shawnee

The first of ten boiler drums for Shawnee Steam Plant of Tennessee Valley Authority is shown riding into the plant for installation. The 165-ton drum is 63½-ft long and 6½-ft wide. It will produce 1.5 million lb of steam an hour to turn a 150,000-kw turbogenerator. The 1.5 million-kw plus station was scheduled to begin operating in December, but construction has been delayed. With the Joppa Plant of Electric Energy, Inc, it will supply the Paducah Plant of Atomic Energy Commission.



These two foreign students met for the first time on the campus of American International College. They are in the United States under auspices of the Mutual Security Agency . . .

HENDRIK DE REYS OF ANTWERP, BELGIUM, I

DeREYS, who works days at Western Massachusetts Electric Co, is shown on job with Russell Purrington, asst plant superintendant

So Europe May Know How Workers

Hendrik DeReys of Belgium and Bernhard Schneider of Switzerland had to come to the United States to learn a common language.

Officials of Mutual Security Agency, who arranged for them to work at Western Massachusetts Electric Co and study at American International College in Springfield, Mass., hope they will carry back to Europe something more than a common knowledge of English.

That's why the agency set up its Work-Study-Training Program. Under it, 2,000 skilled European workers between 20 and 33 are spending a year in this country's colleges and industry. MSA hopes these potential leaders, like Schneider and DeReys, will take home a better understanding of U. S. productivity and the position of workmen in the American democracy.

DeReys for one thinks the position is pretty good, compared to that of the Belgian working man. In Antwerp he was earning the equivalent of $1 an hour after six years' experience in the 100,000-kw steam plant of De Schelde Electric Co. In the U. S., with the same experience, he would make $2, he pointed out.

"I might be able to get a car over here, but in Antwerp I ride a bicycle to work," he said. "Cars cost too much in Belgium."

And things are much worse in most of the other European countries, he said.

Trainee Gets Close Screening . . . DeReys was one of 20 from Belgium to come to this country out of 900 who applied there under the program. Applicants were screened by their countries for eligibility and by MSA from a security standpoint. He is doing electrical maintenance work in Western Massachusetts' new West Springfield station.

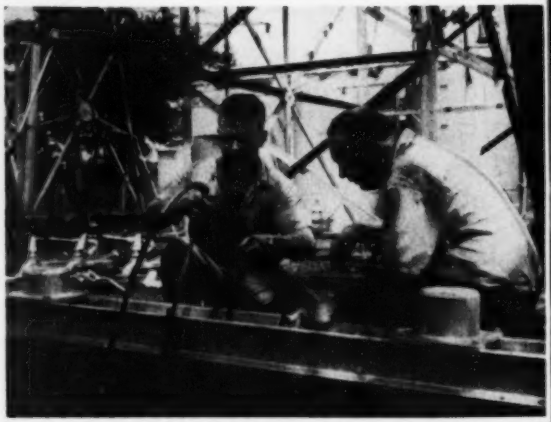
"When I go back to De Schelde," he said, "I hope to get a job as a maintenance foreman."

English came easy, once DeReys got to speaking it every day. He picked up much of it in the First Canadian Army during the war. A member of the Belgian underground, he volunteered to fight with the Canadians when the Allies swept into his country. Later he supplemented his knowledge at, of all places, the movies.

"The U. S. movies all had Flemish subtitles," he explained in a distinctly American-English accent.

Schneider, on the other hand, had to learn English through intensive study at American International, the first

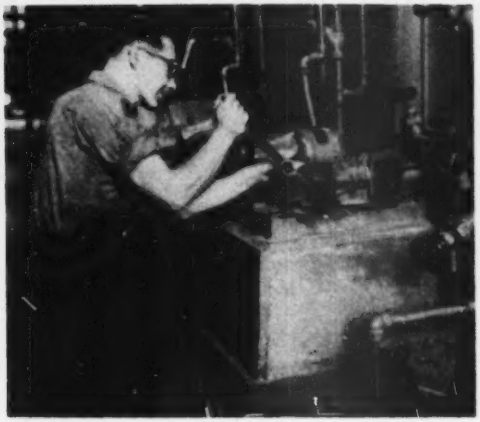
BERNHARD SCHNEIDER OF BADEN, SWITZERLAND



SCHNEIDER had done mechanical assembly work for Brown-Boveri, Ltd, before he came to this country. Now he's learning electrical side

EARNING AMERICAN METHODS AT THE WEST SPRINGFIELD PLANT OF A MASSACHUSETTS UTILITY

INSIDE MAINTENANCE is his main job. Here he works with L. Stafford, another employee, to replace an air-operated regulator valve



BELGIAN TRAINEE uses tools well, his superiors say. Chemical treatment pump got out of whack, and DeReys was assigned to fix it

Produce Power at Western Mass.

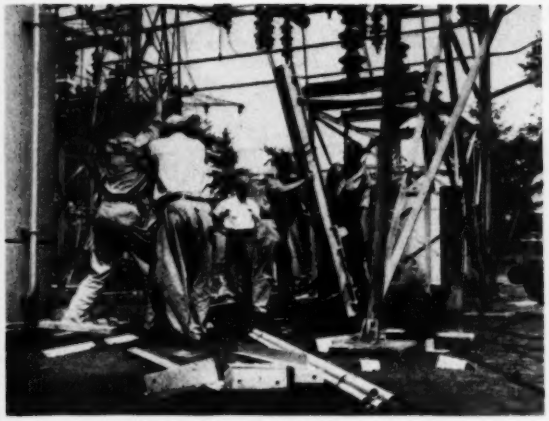
few weeks he was here. Once a trainee can get along in the language, the participating college places him in industry at a job close to his skills.

American International is handling the affairs of 50 students in the program. They are required to work days to support themselves and pay for evening courses that make up the "study" side. The courses are intended to give them a picture of American industrial methods and management.

Switzerland, although cooperating in the work-study-training program, is not a Marshall Plan country. For this reason, Schneider's company, Brown-Boveri, Ltd, paid his way to Springfield. Normally the participating country pays the trainee's fare to New York. The United States government pays his way from there to the college where he will study and gives him $100 to tide him over until he is on the payroll of a company in the vicinity.

New Line of Work . . . Schneider learned mechanical phases of diesel generator assembly in Brown-Boveri's main plant in Baden, Switzerland. Over here, he says, he's getting a

OES OUTSIDE ELECTRICAL MAINTENANCE WORK FOR THE COMPANY IN THE SPRINGFIELD AREA



SWISS TRAINEE is shown helping other outside maintenance men hoist a circuit breaker disconnect into place at one of the substations

USING A DRILL 50 feet up metal work was good experience. But Schneider's willing to admit he was not cut out for high line work

AMERICAN INTERNATIONAL COLLEGE PROVIDES "STUDY" SIDE OF THE PROGRAM

CAMPUS STUDIES are an integral part of the MSA program. They are aimed at giving trainees picture of the country's industrial methods

TRAINEES CHAT with J. Bernard Frisbie of MSA and John F. Mitchell, who coordinates AIC's part in the work-study program

SCHNEIDER AND DeREYS have come to know many American students during courses such as this one in Industrial Management. Associate Prof Clinton M. Bowen is at center

AFTER WORK and school there's still study. Schneider brushes up on English in his room

chance to learn about the electrical side by doing outside maintenance for Western Mass. He plans to return to Brown-Boveri and make a career of this type of work.

As have all physically qualified men of Swiss nationality, Schneider has served his stint in the country's citizen army. In previous years, Brown-Boveri had to give him time off for compulsory military refresher training. He is subject to call immediately in an emergency.

To a Swiss, what's the nicest thing about living in the United States?

"You can eat all the ice cream you want," Schneider grinned. "There is plenty in Switzerland, but the price is too high."

Living costs in general are higher there, he commented, although the standard of living ranks with the best in Europe.

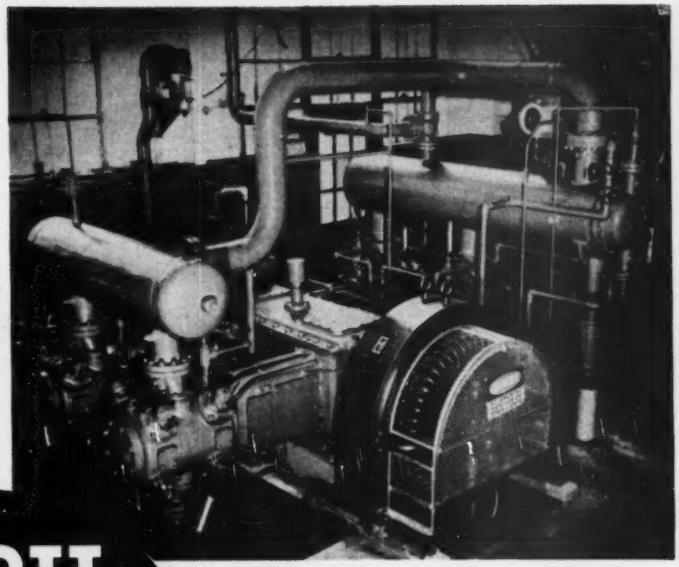
A Couple of the Boys . . . Both DeReys and Schneider have come in for intramural kidding from their fellow workers at the utility. Which is to say they have been accepted. DeReys says Belgium is best; Schneider says the Swiss really know how to live. Their coworkers say, "Ah, you've never had it so good." And then it goes around again.

There's reason why the U. S. government wants to spread a better word through Western Europe at the level of skilled workmen such as Schneider and DeReys. The Communists want to keep down the productivity of Western European nations and thus, weaken their resistance. Through Red-dominated unions and by other means, they have spread lies, selected truths and misinformation among European workers about the effect American methods of production will have on their lives.

Today, MSA feels, the European worker has a deep fear that mechanization and higher productivity will mean harder work for some, unemployment for many and a lower standard of living for all.

Through Schneider and DeReys and 2,000 other trainees, the agency proposes to show European workers that high production has brought U. S. workers increased employment and the highest standard of living in the world.

THE IDEAL DRIVE FOR GAS COMPRESSORS



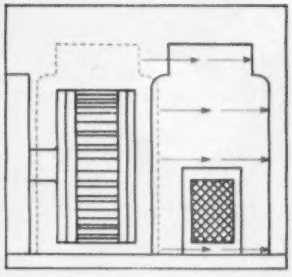
ELLIOTT *Synchronous* MOTORS

This Elliott synchronous motor drives a Clark CMA-4 compressor. It is featured by the rigidity and strength of its Elliott "Fabri-Steel" construction in frame and stator core plus a number of unique design and construction advantages.

ONE OF MANY REASONS FOR ELLIOTT RELIABILITY
Starting winding bars are SILVER-BRAZED to heavy end ring segments, insuring a permanent, high strength joint, with highest electrical and thermal conductivity. Photo illustrates how an assembly jig is used during silver-brazing to guarantee accurate alignment of parts.

Long-wearing steel collector rings are completely enclosed and pressure ventilated with uncontaminated air. A transparent removable window permits inspection or quick replacement of brushes.

The overhung motor rotor reduces space requirements, eliminates need of an outboard bearing, and increases efficiency. Inspection of the entire stator core and field poles is simple, since the frame can be shifted along its foundation to clear the rotor.



ELLIOTT Company R2-1

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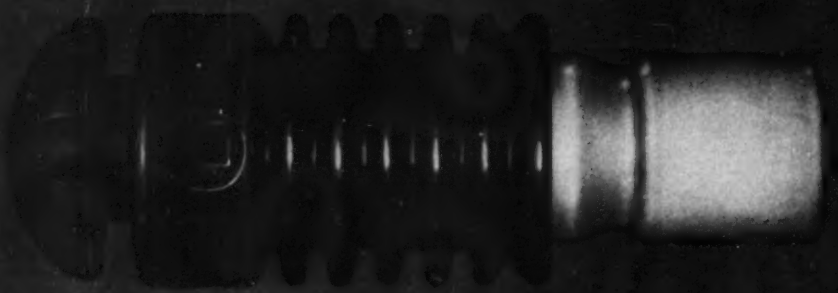
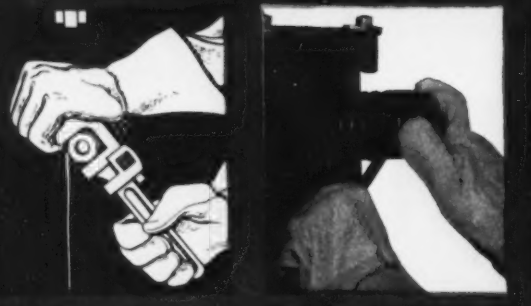
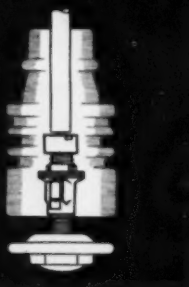






Kuhlman ELECTRIC COMPANY, BAY CITY, MICHIGAN

How Much Load Can CVP Take?

This question arises as Bureau of Reclamation offers contract to Nevada agency for 33,000 kw of power from project

Just how much Central Valley Project power can Reclamation Bureau offer without oversubscribing its available load? This question developed when the bureau recently offered the Colorado River Commission of Nevada a contract for 33,000-kv of CVP energy.

The bureau's firm power output from Shasta and Keswick power plants is 300,000 kw. Roughly, it will gain another 100,000 kw of firm power when the Folsom power plant and the afterbay Nimbus plant go on the line late in 1954. That makes 400,000 kw.

Reclamation already is serving 12 preference customers—governmental agencies which can qualify under the reclamation law—for a total of 35,000 kw. This power is wheeled by Pacific Gas & Electric Co. And, just a few days ago, PG&E agreed to permit the bureau to use its lines to deliver power to eight other potential preference customers, including Sacramento Municipal Utility District.

If each of these agencies signs a contract for CVP power the amount available will be inadequate. In preliminary discussions, SMUD officials have spokeen in terms of 290,000 kw, anticipating that much will be needed to meet its load in 1960. SMUD officials, incidentally, also are discussing a renewal of a power contract with Pacific G&E. The present contract expires June 30, 1954.

Bureau officials admit that some time in the future they no longer will be able to negotiate for the sale of CVP because none will be available.

The bureau realizes, however, negotiations with all of the agencies offered CVP power probably will never reach the stage of contract signing.

The offer to the Colorado River Commission of Nevada may be considered in this category.

The allocation of 33,000 kw was determined by Secretary of the Interior Oscar L. Chapman but these strings were attached:

- Contract becomes void if arrangements for wheeling and firming the CVP power are not made by June 30, 1953. There are now government transmission lines to Nevada, so the transfer of energy would have to be made over the lines of private utilities—PG&E and Southern California Edison Co. Likewise steam electric energy from private sources would be needed to provide a firm power supply.
- Power to be made available under the contract cannot be resold to private utilities.

Unofficially, PG&E already has stated it will not permit the use of its lines for the long haul of CVP power to Nevada.

Guatemala Considering Power Company's Status

(*McGraw-Hill World News*)

Guatemala City. A contract with the Guatemala Government under which Empresa Electrica de Guatemala operates may be up for a revision that could lead indirectly to nationalization of the company.

Empresa Electrica, a subsidiary of American Foreign Power Corp, operates under a fifty year government agreement which expires in 1973. The company is run without direct government control except for provisions regarding maximum power rates. It is, of course, subject to legislation affecting wages, labor working conditions and the like.

Some government circles, using the government-controlled press and radio, have called for nationalization of the private power company or the imposition of major changes in the existing operating contract.

A congressional committee charged with recommending changes in Empresa's contract is headed by Jose Fortuney, who also heads Guatemala's active and powerful Communist Party.

Watching Out for Smoke

With New York City cracking down vigorously on violators of smoke control regulations, the city's Board of Transportation has taken to policing one of its power plants to control emissions. A watcher has been posted in the yard of the board's plant on East Side Manhattan, which supplies power for the IRT subway.

When the smoke from any of the stacks is too dense or black, the plant foreman is signaled and told which stack is offending so adjustments can be made. During the past year the plant has been notified twice of violations by the Smoke Control Bureau and has been the subject of dozens of complaints.

Canada Will Raze Dam If Project Is Okayed

Canada says it will remove Gut Dam on the St. Lawrence River if Canadian-United States plan for construction of a hydroelectric project on the river is authorized by the International Joint Commission.

The 48-year-old dam, across the Channel between Galop and Adams Island, has been a target of property owners along Lake Ontario. They contend it has been the cause of severe high-water level damage they have suffered in the last few years.

Speaking at a hearing of the joint Commission in Albany recently, David W. Mundell of Ottawa, counsel for Canada on the power application, promised the dam would be razed if the proposal for construction of the $400,000 power plant near Massena were approved.

John E. Burton, chairman of the New York State Power Authority, urged approval of the power proposal at the hearing. He said the authority expected to be "designated by the United States government to construct and operate that part of the proposed project which lies on the New York side of the international boundary."

New York has an application pending with the Federal Power Commission asking permission to participate in the project with Ontario.

Blackout in Jacksonville

A severe surge on the Jacksonville, Fla., electric system resulted in shutdown of the two generators at Southside Plant recently causing blackouts in south Jacksonville and several suburban areas. One generator was out of service for an hour and 25 minutes and the second for a slightly longer period.

THE NARROWS of New York harbor, between Staten Island (left) and Brooklyn (right), is one of the World's busiest waterways. It was spanned this month by a 138-kv pipe-type submarine cable 6,800 ft long. Cable was pulled rather than laid, to avoid ship traffic

Con Edison Spans the Narrows

138-kv oil-filled pipe-type cable links Staten Island with Edison Company System in Brooklyn

The first submarine power cable under the Narrows between Brooklyn and Staten Island was pulled into place by Consolidated Edison Co of New York the day after Labor Day. It is the first of two 138-kv oil-filled pipe-type cables that will operate initially at 27 kv to link Con Edison's Hudson Avenue generating station in Brooklyn with the system of the Staten Island Edison Co, purchased by the New York utility in 1950.

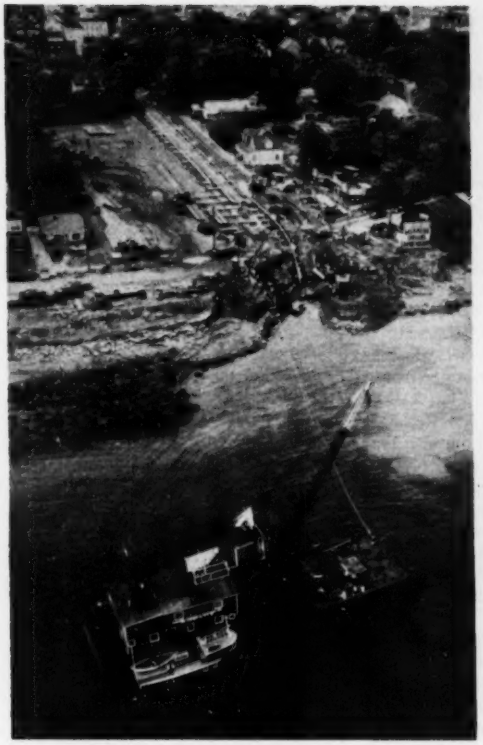
Besides being the first interconnection between the two systems, the 6,800-ft cable is believed to be longest of its type. Each circuit consists of three single-conductor 1,500,000-cir mil triangular segmental compression cables in an 8-in. steel pipe laid on the floor of a 25 by 25 ft trench reaching from Shore Road, Brooklyn, to Edgewater Street in Staten Island. This trench is shared with a high pressure natural gas pipe line.

Installation of the pipes to house the cables was completed earlier, during the week of July 21. Each pipe, coated with two inches of Somastic and reinforced concrete, was first assembled in 700-ft lengths on the Staten Island Shore. These lengths were then welded together as the pipe was pulled across the Narrows by a winch on the Brooklyn shore. Two such pipes have been installed, one for each of the two cable circuits. The pulling of each pipe took approximately 50 working hours.

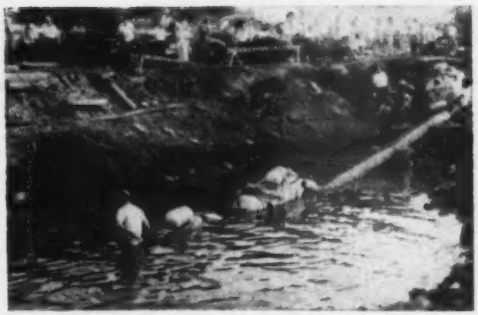
Pulling of the first cable was completed in 11½ hours. Three reels, each 15 ft high and weighing 30 tons, were set up on the Brooklyn shore and the pull made by a trailer-mounted LST winch on the Staten Island shore. The pulling operation proceeded without mishap with speeds ranging up to a maximum of 30 ft per minute.

The three 30-ton reels of cable were hauled to Brooklyn by trailer over specially selected routes from the Yonkers, N. Y., cable factory to avoid bridges and other obstructions.

For the time being the cable will operate at 27 kv with the pipe housing filled with oil under nominal pressure. Ultimately the cable will operate at 138 kv under an oil pressure of 200 psi. Each triangular segmental conductor, 1.4 in. in diameter, is covered with a 560-mil thickness of oil-impregnated paper insulation with a copper



JOB SET-UP on the Staten Island shore, just before the first length of pipe began its 6,700-ft trip to Brooklyn. Pipe sections were welded into 700-ft lengths on racks. Individual lengths were transferred to dollies which rode a track extending into the water



THE BIG MOMENT . . . just before the signal was given to start pulling the first pipe for Con Edison's new Narrows interconnection. Pontoons, filled with air, helped ease the pipe along the trench. They were cut free once the Narrows was spanned

HEADQUARTERS shacks of contractors near water's edge are shown during continuous pipe pulling. Con Edison's command post is at the right where a scoreboard shows the progress of the underwater pipe pull. Water's edge is just off the lower corner of the photo

shielding tape under an 80-mil polyethylene jacket. This jacket is in turn protected by two 5-mil bronze binder tapes and a monel skid wire. Monel was selected for the skid wire in preference to bronze because of its greater resistance to abrasion. All three single-phase conductors were pulled simultaneously with the pipe partially filled with oil.

The new Narrows submarine crossing is by far the longest single cable pull by the Con Edison Company to date. Longest previous pull on the Edison system was 4,800 ft but involved a cable of smaller size and rating. While longer submarine cables have been laid on other systems, the Edison job is believed to be the longest in which the cables were pulled into place under tension.

CABLE IN TRANSIT from Yonkers factory to Brooklyn. The 30-ton reels were shipped mounted on turntables complete with brakes to control payoff and remained on trailers throughout pulling operation

CABLE PULLING EYE enters the flexible guide leading to the pipe as the long cable pull begins. The snubbing reel can be seen in the background. Pulling was done by LST winch in Staten Island

Storm Warning for Contractors

Comptroller-General tells General Accounting not to approve payments on federal projects that exceed authorizations

A storm warning for contractors who do business with the federal government went up recently from the office of Comptroller-General Lindsay Warren, watchdog of Congressional spending.

The House Interior Committee had asked Warren if Bureau of Reclamation had broken any federal law in overcommiting its authorization for the Eklutna Hydroelectric Project near Anchorage, Alaska.

Warren opined that it had. This means the General Accounting Office will not okay payments to contractors for work on federal projects that exceed the Congressional authorization. The opinion was based on an interpretation of Sec. 3732, Revised Statutes, which provides:

"No contract or purchase on behalf of the United States shall be made, unless the same as is authorized by law or is under an appropriation adequate to its fulfillment . . ."

Effect Is Wide . . . In addition to Reclamation projects, this would apply to construction by the Corps of Engineers, to atomic energy projects; or on any federal construction where the Congressional committee wants to put limitations on the amount of the authorization.

Under such a limitation, a contractor could be taken into court by the General Accounting Office to recover money sent him by the contracting agency. Although few, if any, may ever find themselves in court as a result of such a situation, contractors still would do well to check the legislative status of a project before accepting a contract for work on it.

In the case of Eklutna, the Interior committee set a limitation of $20,365,000. An overcommitment of $3,257,000 came to light last spring when Reclamation sought to have the authorization raised to $35-million.

"The members of our committee were very disturbed over the revelations in the Eklutna Project," said Rep Clair Engle, California Democrat, Interior subcommittee chairman who sought the opinion from the Comptroller-General in answer to the Bureau's request for raising the authorization.

First Outside U. S. . . . Reclamation Commissioner Michael Strauss attributed the request for more funds to increased materials costs and to high priced Alaskan labor. The four-mile tunnel to channel water from Eklutna Lake to the power plant will cost $17.3-million. The 33,000-kw power plant is the first Reclamation construction project outside the 17 Western states and will provide 164 million kwhr of firm and non-firm electric energy for the Anchorage area when completed around 1955.

Notice to proceed on construction of the power plant has been delayed, pending additional authorization from Congress.

Strauss' office still is studying the opinion and considers it "merely advisory". It has no plans to halt any of the projects authorized over the ceiling and hopes that it can talk Congress into upping the Eklutna authorization before a showdown comes on the overcommitment issue.

POWER BRIEFS

● Virginia REA Association at Bowling Green, Va., has changed its name to Virginia Association of Electric Cooperatives.

● First phase of a new 14.4-kv underground system being installed by Tucson Gas, Electric Light & Power Co in Tucson will include 20,000 conductor-ft of 250,000 cir mils, single-conductor aluminum cable in a non-lead sheath.

● Construction got underway last month on the $16-million Box Canyon Dam near Newport, Wash., for the Pend Oreille County PUD. The project will have a capacity of 66,000 kw and is scheduled to go into operation in the fall of 1954. The PUD plans to use about 18% of the power and sell the balance to other distributors.

● Chandler, Ariz., voted last month to grant a 25-year electric franchise to Arizona Public Service Co. The existing franchise expires Sept. 19. Under a new agreement Arizona PS will pay the town 2% of receipts from sale of electricity at retail for residential and commercial purposes within the limits of Chandler. Gilbert, Ariz., earlier voted to grant an identical franchise to the company.

● Mississippi Power Co has received a safety merit award from Edison Electric Institute for working 1 million man-hours without a disabling accident. This covers the entire company personnel for the period Oct. 23, 1951 to July 24, 1952.

● Preliminary work has begun on a diversion tunnel Pacific Gas & Electric Co is building as the first phase of a proposed new hydroelectric development on the Pit River in Shasta County, Calif. The tunnel, 4 miles long, 19 ft in diameter and concrete-lined, will divert water from the river to the proposed Pit 4 powerhouse. Tunneling will take 2½ years. Pit 4 will have a generating capacity of 84,000 kw.

● A short circuit in one of the cables connecting the Lake Road and East 53rd St. sections of Cleveland's municipal light plant caused a two-hour outage recently. Three cables were badly damaged and a ground resistor burned out. Damage may run as high as $10,000. The Lake Road plant was out of service for two hours and the 53rd St. plant for 40 minutes. Cleveland's municipal system is not tied in with Cleveland Electric Illuminating Co.

● Construction of Pennsylvania Water & Power Co's 32-mile steel tower line designed for 220-kv operation was scheduled for completion late last month and is expected to be in use this month at 66-kv. From Safe Harbor the line runs to Middletown, where a connection will be made with Metropolitan Edison Co's line, and on to Hummelstown for connection with Pennsylvania Power & Light Co's line.

● Second unit at Salt River Power District's Kyrene station in Phoenix will be a 60,000-kw, preferred standard unit to operate on steam at 1,250 psi, 950 F. Although scheduled for operation June 1, 1953, the district hopes to get it on the line in March.

● Arizona Public Service Co has begun a program of compulsory physical examinations for its 225 management and supervisory personnel to insure their being in top condition.

Interrupting ratings now up to 6000 amperes at 4.8 kv, 4000 amperes at 14.4.

Complete range of nominal load ratings from 25 to 200 amperes, for 2.4 to 14.4 kv service, makes available the greatest number of sectionalizing points in this class.

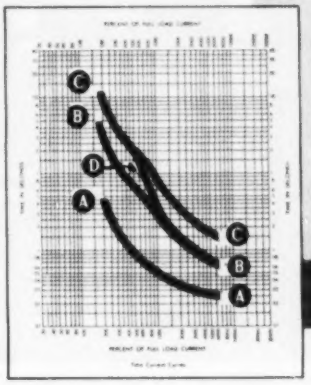
Only Recloser with:

Choice of four time-current curves, ten tripping sequences, which gives maximum flexibility in meeting all coordination problems on heavily loaded distribution circuits.

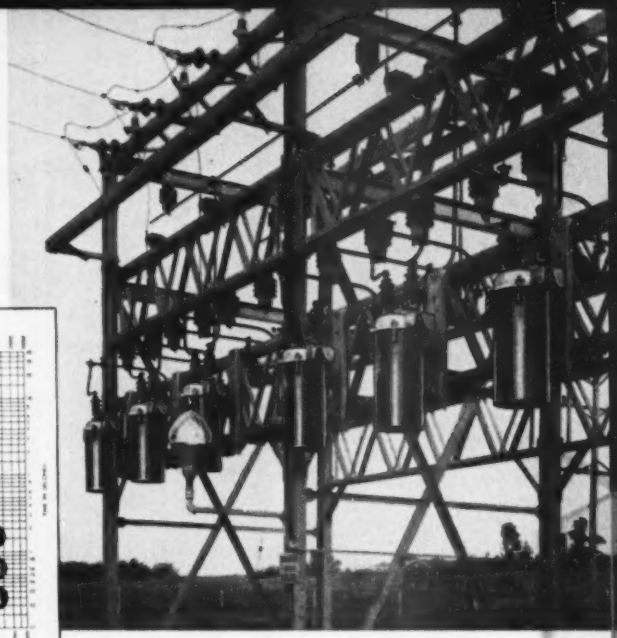
Full power-class design, with 110 kv basic insulation level.

Clamp-on bushings, with plated Universal terminals for copper or aluminum conductor.

Oil Cross Blast arc interruption insures rapid clearing of heavy faults.



Only recloser with choice of 4 time-current curves and 10 operating sequences. Coils and sequences are easily changed in the field.



Kyle Type L Reclosers at a middle-western power company substation, where they help assure uninterrupted service to an urban area.

L-M Increases Interrupting Rating, Adds 200-amp Rating to Kyle Type L Recloser

To protect substations and feeders with heavier loads and higher fault currents, L-M has added a 200-ampere rating to the Kyle Type L Recloser, and has increased interrupting ratings appreciably.

The higher interrupting ratings are based on extensive testing of production reclosers, as well as field experience, and apply to Kyle Type L Reclosers already delivered.

The new higher nominal load rating involves a new coil and some increase in the capacity of certain current carrying parts. The changes can easily be made on any Type L reclosers now in service if desired.

The Kyle Type L not only handles present heavy loads, but it offers increased capacity for the future, plus the present benefits of Type L performance and economy. It provides complete coordination with fuses and other reclosers in series, with a corresponding reduction in fuse blowing and service calls.

Heavy Duty Type L Single Phase
Nominal Rating 14.4 kv, BIL 110 kv

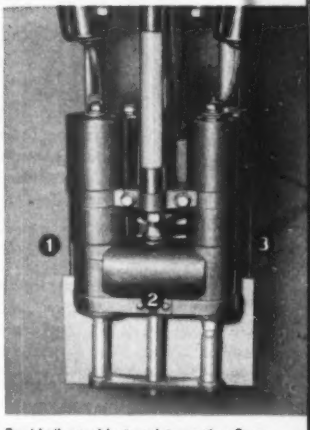
Rating Amperes	Minimum Tripping Current Amperes	Interrupting Ratings* Symmetrical RMS Amperes at Maximum Phase to Phase Nominal Voltage of: 4.8 kv	14.4 kv
25	50	1500	1500
35	70	2100	2100
50	100	3000	3000
70	140	4200	4000
100	200	6000	4000
140	280	6000	4000
200	400	6000	4000

*Recloser interrupting ratings are based on the maximum test circuit X/R ratio of not less than 8, and the asymmetrical rating in total RMS amperes is 1.4 times the symmetrical ratings given in the table.

Get the Details

Ask the L-M Field Engineer for full information on the Type L and other Kyle Reclosers providing complete, coordinated protection; or write for a copy of bulletin CR-1A. Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

Kyle Reclosers are filled with ORTO®, L-M's oxidation-resistant transformer oil.



Rapid oil cross blast arc interruption. Double contacts draw two arcs in series. Gas from one arc at 1 blasts oil in chamber, 2, across arc at 3, extinguishing it.

LINE MATERIAL
Kyle® Reclosers

99

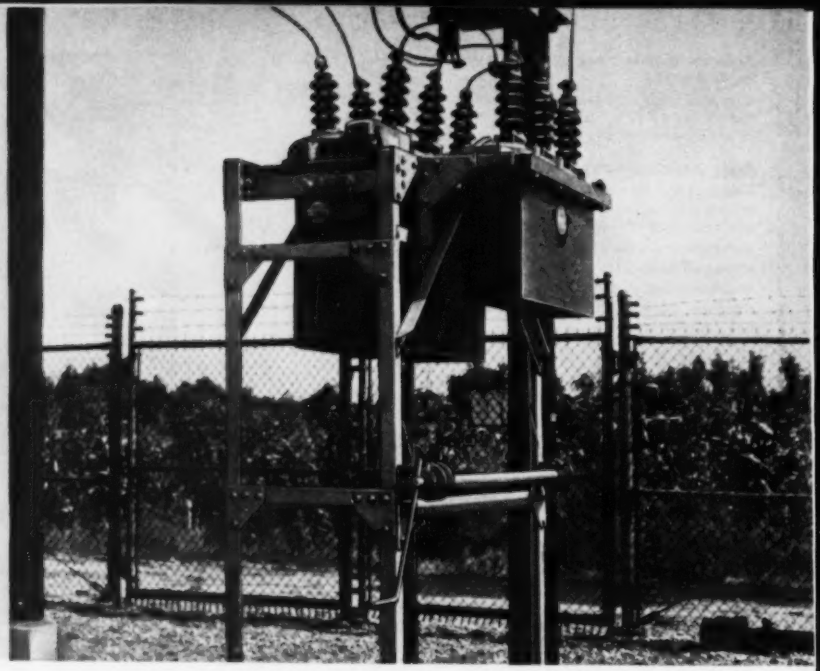
COMPLETE COORDINATED AUTOMATIC PROTECTION FROM SUBSTATION TO LOAD

First 3-phase power-class recloser with 100,000 kva interrupting rating.

Completely self-contained unit provides automatic protection of substation feeders at less than half the cost of using substation breakers. Also used on feeder lines with heavy loads and high fault currents.

Available with ground trip solenoid and current transformer.

All three phases trip simultaneously when fault occurs on any one phase, preventing feedback.



The Kyle Type R Recloser at St. Joe substation of Indiana-Michigan Electric Company, Ft. Wayne. The recloser, termed the greatest recloser development since Kyle pioneered dual timing, is available with ground trip solenoid and the current transformer shown here.

Here is L-M's Kyle Type R 3-Phase Heavy-Duty Recloser

By R. C. KIRK,
Manager, Kyle Products Sales, Line Material Company

To meet the growing need for power-class protection on 3-phase lines, L-M engineers have developed a heavy-duty recloser that provides simultaneous tripping of all three phases on feeders with heavy loads and high fault currents.

This is a new and very desirable feature in heavy-duty 3-phase reclosers. It prevents high transient voltages sometimes encountered with single-phase switching on delta systems; and on wye systems it prevents feedback which might cause trouble on heavily loaded 3-phase circuits.

6000 Amperes Interrupting Rating

This recloser, known as the Kyle Type R, is a rugged, dependable unit capable of replacing breakers in substations with up to 100,000 kva fault capacity. The recloser is rated 25 to 280 amperes nominal load, trips at from 50 to 560 amperes, and interrupts up to 6000 amperes at 4.8 kv, or 4000 amperes at 14.4 kv.

Ground Fault Tripping

The Type R is available with a current transformer and ground trip solenoid that will trip the recloser at from 50 to 400 amperes.

This new Kyle Type R has been in continuous use in substation and pole line applications of several power companies for a period sufficient to substantiate design calculations and the extensive tests in the "Know House," L-M's short-circuit test laboratory.

Provides Dual Timing

Because it interrupts so much faster than breakers, the Type R permits co-ordination with fuses, eliminating unnecessary fuse blowing on temporary faults and thus substantially reducing service calls.

KYLE Type R Series Trip Coil Ratings

Nominal Load Rating Amperes	Minimum Tripping Current Amperes	Interrupting Rating* Symmetrical RMS Amperes at Maximum Phase-to-Phase Nominal Voltage of: 4.8 kv	14.4 kv
25	50	1500	1500
35	70	2100	2100
50	100	3000	3000
70	140	4200	4000
100	200	6000	4000
140	280	6000	4000
160	320	6000	4000
185	370	6000	4000
225	450	6000	4000
280	560	6000	4000

*Recloser interrupting ratings are based on the maximum test circuit X/R ratio of not less than 8, and the asymmetrical rating in total RMS amperes is 1.4 times the symmetrical ratings given in the table.

Closing Solenoid Voltage Ratings in complete range from 2.4 to 14.4 kv.

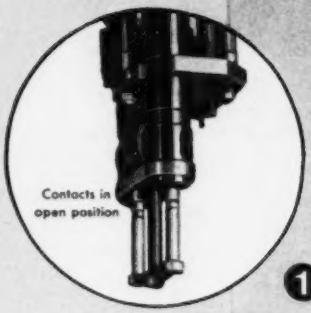
The 160 and 225 ampere ratings are available for special coordination problems. When either of these two ratings is used in series with other reclosers, minimum trip currents should have a ratio of not less than 1.32 for best coordination.

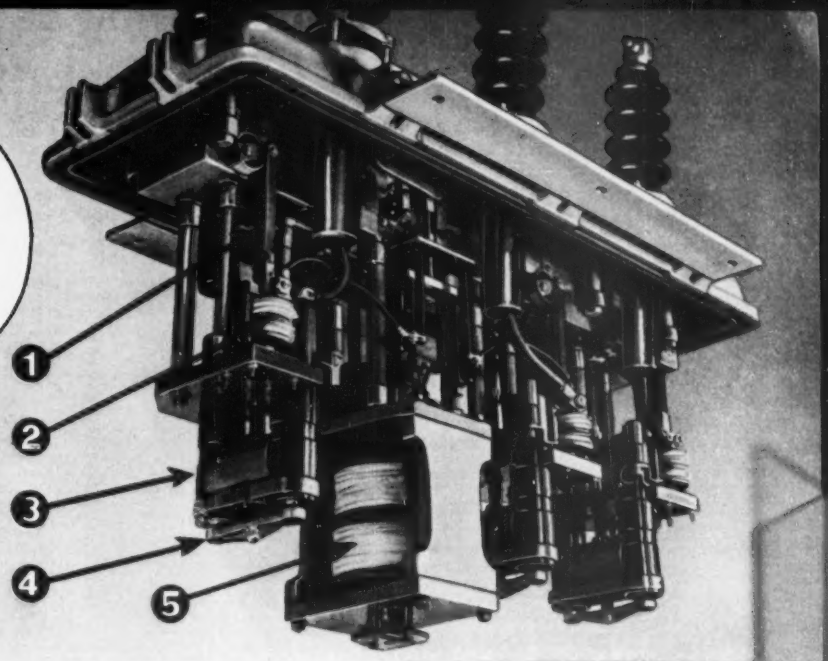
Ground Solenoid Settings: Minimum Pickup Current primary, amperes; 50; 67; 100; 133; 200; 400.

Three time-current curves; A, fast; B, retarded; C, extra-retarded. Available in any of seven sequences.

Trip coils, closing coil, and sequences easily changed in the field.

Insulation Level: full power class; meets ASA, NEMA, AIEE standards for 15 kv station equipment, as follows:
60 cycle one-minute withstand, dry: 50 kv.
60 cycle ten-second withstand, wet: 45 kv
1½ x 40 ms surge withstand (BIL): 110 kv





Open view of the completely self-contained Type R Recloser operating mechanism: 1, tripping linkage; 2, series trip solenoid; 3, oil cross blast arc extinction chamber; 4, contact structure, with contacts in closed position; 5, closing solenoid. Ground trip solenoid is on opposite side.

Applications for the Type R

Because of its operating advantages, the savings it affords in service calls, and its low cost in comparison with substation breaker equipment, this recloser will no doubt replace breakers in many cases. The low cost is possible because the Type R is a single, self-contained unit, designed, manufactured, and tested on a standardized basis, with all the economies this implies. It will also be used in many line locations where heavily loaded 3-phase feeders justify this protection.

Complete Automatic Protection

With this new unit, Line Material now offers a complete range of automatic protection, with both single-phase and 3-phase reclosers, in the entire range up to 6000 amperes interrupting rating at 4.8 kv, and 4000 amperes at 14.4 kv. Thus L-M now provides complete, coordinated automatic protection from substation to load.

DESIGN AND OPERATING FEATURES

Operation completely automatic. On permanent faults recloser opens and recloses three times, and then locks out. On temporary faults the fast openings permit the fault to clear; if it is not cleared, the time delay operation blows the sectionalizing fuse, and the recloser resets itself for another complete cycle. Type of fault—3-phase, single-phase, or phase-to-ground—does not affect the timing.

Time Delay System, located above oil level and is Silicone fluid filled.

Operating curves: A, fast; B, retarded; C, extra-retarded. Seven possible standard sequences or combinations. Sequences easily changed in the field.

Dual Contacts, with oil cross-blast arc extinction which has proved so successful on the Kyle Type L.

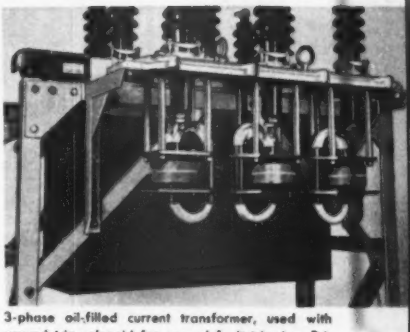
Clamp-on bushings, easily replaced; plated "Universal" terminals for both copper and aluminum, No. 6 solid to 250 MCM stranded conductor.

Kyle non-reclosing feature, for extra safety, standard equipment.

Operating handle, counter, and non-reclosing feature lever easily accessible under sleet hood. Trip-free operating handle.

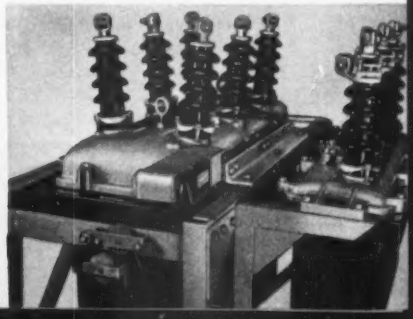
Let Us Answer Your Questions

Ask the L-M Field Engineer for a copy of Bulletin CR1C —or write Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).



3-phase oil-filled current transformer, used with ground trip solenoid for ground fault tripping. Primaries are connected one in each phase through coaxial bushings, and secondaries are in parallel. If the three primaries have unbalanced currents, an unbalanced current will flow in the secondaries and energize the ground trip coil, which then operates the recloser in the same manner as the series trip coil.

Top view of Type R recloser connected to TR transformer at right, in substation mounting frame. Both transformer and recloser are filled with ORTO®, L-M's oxidation-resistant transformer oil. Oil filler plug with ¾" standard thread, located on top of tank, has dip-stick attached.



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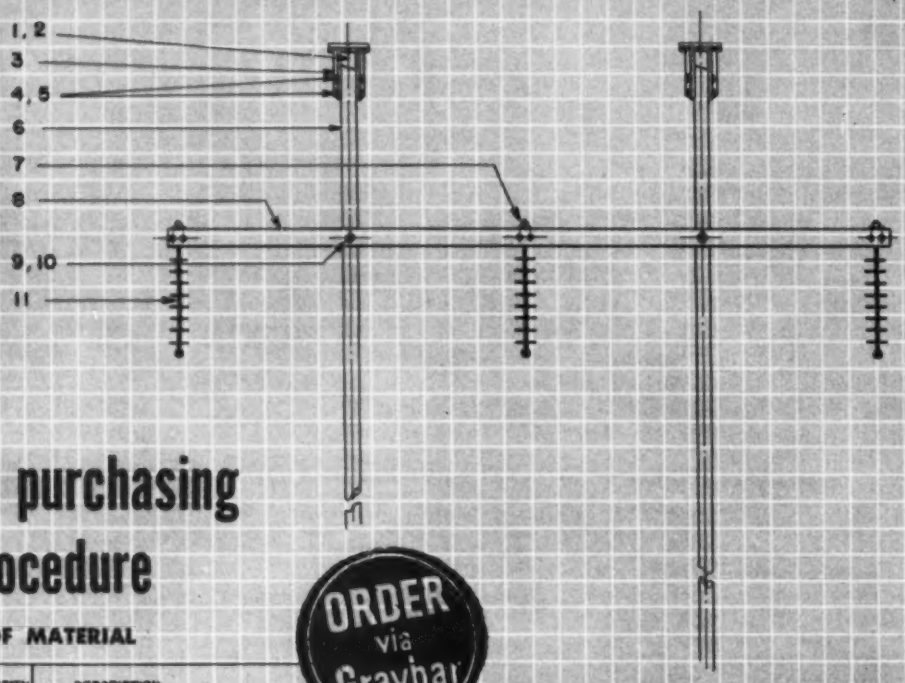
LINE MATERIAL
Kyle® Reclosers

COMPLETE COORDINATED AUTOMATIC PROTECTION FROM SUBSTATION TO LOAD

ACCEPTED STANDARDS

...in construction practice

TANGENT—H. FRAME STRUCTURE—METAL SPACERS WITH STEEL STATIC WIRE SUPPORT



...AND purchasing procedure

ORDER via Graybar

LIST OF MATERIAL

DRG REF.#	QUANTITY	DESCRIPTION
1	2	CLEVIS
2	2	SUSPENSION CLAMP FOR STATIC WIRE
3	2	STATIC WIRE SUPPORT
4	4	MACHINE BOLT 5/8"
5	4	MF LOCKNUT 5/8"
6	2	POLE
7	3	STEEL SPACER FITTING W/MOUNTING BOLTS
8	2	CROSSARM
9	2	STUD BOLT 7/8" W/2 WASHER NUTS
10	4	MF LOCKNUT 7/8"
11	As Req'd	SUSPENSION INSULATOR AND FITTINGS

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One of a series of advertisements high-lighting the economies of standardization

Alabama Power Shifts Officers

Henry, Henkel, Wendel, and Hunter are assigned new duties. Wade and Fies are promoted to vice presidents

Alabama Power Co's new president L. M. Smith has announced a number of changes in the company's top personnel, including the election of two new vice presidents.

H. N. Henry, vice president and assistant to the general manager, is now vice president in charge of employee relations; J. O. Henkel, Jr. vice president in charge of personnel and safety, has been named vice president and executive assistant; D. D. Wendel, manager of the company's Western Division at Birmingham, has taken over as manager of transmission and distribution; and C. T. Hunter, vice president in charge of the Southeastern Division at Eufaula, has moved up to vice president and division manager at Birmingham.

New Vice Presidents . . . The new vice presidents are W. M. Wade, who has been district manager at Gadsden and is now division vice president at Eufaula replacing Hunter, and Milton H. Fies, consulting mining engineer, who has been named vice president in charge of coal operations.

Henry, a graduate of Virginia Military Institute, has been with Alabama Power since 1924. Among the positions he has held since that time are office engineer, district superintendent, district manager, and manager of the utility's industrial development division.

Beginning as an engineer in the Western Division shortly after World War I, Henkel later became superintendent of the Eastern Division, district manager at Gadsden and Montgomery, and division manager at Huntsville. He is a graduate of Mississippi A&M College.

Wendel joined Alabama Power in 1927 as a junior engineer at Tuscaloosa. He moved up to assistant district superintendent at Montgomery and then returned to Tuscaloosa as district superintendent. After service in World War II he returned to the utility as manager of its Western Division. He has a degree from Alabama Polytechnic Institute.

Hunter, a graduate of Mississippi State College, began his career in the electrical field as an electrician's helper. He came to Alabama Power in 1923 as an electrician and later became district engineer, district superintendent and district manager at Jasper. In 1929 Hunter was made Southeast Division manager and was elected to the post of division vice president in 1941.

W. M. WADE

Joined Utility in 1924 . . . An engineering graduate of Clemson College, Wade began as a construction engineer in 1924. He was put in charge of the company's street railway system at Montgomery in 1932 and then was appointed district engineer and superintendent of the Phenix City district.

Later he was made assistant superintendent and then superintendent of the Southern Division in Montgomery. Wade has been district manager at Gadsden since 1943.

Fies, a mining engineering graduate of Columbia University who holds an honorary degree of Doctor of Science from the University of Alabama, is a consulting mining engineer for the U. S. Bureau of Mines. He was vice president in charge of operations for DeBardeleban Coal Corp for 25 years. Consulting mining engineer for Alabama Power since 1937, he was placed in charge of its coal mining operations in 1946.

In 1949 Fies assisted in the drafting of a mining law for Alabama. He is a member of the National Bituminous Coal Advisory Council under the Secretary of the Interior.

Penelec Announces Changes

Pennsylvania Electric Co has announced personnel changes in its technical department and Northern Division.

W. H. Lambert, system superintendent of electrical equipment, has been appointed operating superintendent of the technical department. I. L. Phillips, assistant superintendent of electrical equipment, has been made acting superintendent to succeed Lambert. In another appointment, M. J. Fulton, engineering superintendent, was named manager of transmission.

Changes in the Northern Division are as follows: E. F. McCullough, stores supervisor for the Bradford-Warren districts, has been named division stores supervisor; J. M. Grove, director of personnel for the same districts, division director of personnel and safety; C. H. Vatter, chief mechanic for the Meadville district, division transportation superintendent; and C. L. Hockman, meter superintendent in the Oil City district, division meter superintendent.

Lambert started with Penelec in 1930. Phillips joined the utility in 1938 and Fulton started with a predecessor company of Penelec in 1913. Both Lambert and Phillips are members of the American Insitute of Electrical Engineers. Fulton is a former member of Pennsylvania Electric Association's Transmission and Distribution Committee.

McCullough has been with Penelec and a predecessor company since 1930. Grove joined the utility in 1919, Vatter in 1928, and Hockman in 1927.

Hockman is a member of the International Association of Electrical Inspectors and the Meter Committee of PEA.

3rd PIP Workshop Planned

Public relations men will get together in Chicago Sept. 18-19 for a study of objectives and an exchange of ideas

Public relations staff members of companies participating in the Public Information Program will hold their third annual workshop conference, Sept. 18-19, at the Edgewater Beach Hotel, Chicago.

The conference is a "shirt sleeve" affair designed to give public relations men a better understanding of PIP objectives and industry problems and an opportunity to exchange ideas on operational techniques.

National, regional, and local aspects of PIP will be outlined by Donald D. Hoover, president of Bozell & Jacobs, PIP counsel. Aiding him will be B&J vice president, Henry Obermeyer, and Don Underwood, B&J's Washington representative.

A panel to discuss the same subject will have these men making regional reports: John Costello, Ohio Edison Co, East North Central; Paul Dingledy, Pennsylvania Power Co, Mid-Atlantic; R. D. Furber, Northern States Power Co, West North Central; Robert H. Fite, Florida Power & Light Co, Southeastern; Paul Hoheisel, Oklahoma Gas & Electric Co, Southwestern; and Donald T. Spangenberg, Public Service Co of Colorado, Inter-Mountain.

A National Power Policy . . . Henry B. Sargent, president, Arizona Public Service Co, will speak on "National Power Policy." A round table will follow on "Regional River Problems —What We Are Doing About Them." Kimball I. Jack, Washington Water Power Co, will be chairman. Participants and their subjects will include: Arthur P. Kelly, Rochester Gas & Electric Corp, Niagara River; Gilbert L. Stanton, Idaho Power Co, Hell's Canyon; A. H. Herrmann, Virginia Electric & Power Co, Roanoke Rapids; A. S. King, Northern States Power Co, Missouri River and Oahe Dam; and Dwight Carlsen, Central Power & Light Co, Falcon Project on the Rio Grande.

Making Public Opinion Effective . . . Another panel discussion, chairmanned by E. N. Pope, Carolina Power & Light Co, on the subject, "How the Companies Can Make Public Opinion Effective at the Local Level," will have these participants:

"Use of Surveys," Arnie Bur, Wisconsin Public Service Co.

"Employee Information," Clem Stearns, Washington Water Power Co.

"Stockholder Information," John E. Canfield, Wisconsin Power & Light Co.

"Customer Relations," C. L. Osterberger, Louisiana Power & Light Co.

"Working with REA's," Ed Wendel, Iowa Public Service Co.

"Business - Education Activities," Sydney L. Hall, Cleveland Electric Illuminating Co.

"Area Developments," L. M. Taylor, Mississippi Power & Light Co.

"Institutional Advertising," B. G. Getsinger, Connecticut Light & Power Co.

"Press, Radio Contacts," Jack Riley, Carolina Power & Light Co; and Will Bowman, Utah Power & Light Co.

"Implementing PIP," James M. Huebner, Pennsylvania Power & Light Co.

Guest speakers will be Sen Homer Capehart, who will speak on "Our Greatest Asset—Our Form of Government;" and Louis B. Seltzer, editor, "The Cleveland Press," who will speak on "Freedom of Information."

There will be a special showing of a number of industry motion pictures.

Pasture Contest Awards

Mississippi Power & Light Co recently presented $500 and 28 merit awards to the winners of its annual Pasture Improvement Contest. Contestants were judged by their pasture improvement and development activities according to rules covering pasture program planning, land use, fertilizer application, grazing management, percent return in livestock production from investment in preparing winter and summer pasture, and the submission of progress records of improvement.

A Sign of Vepco

Virginia Electric & Power Co is placing signs like the one above on 71 substations that can be seen from main highways. The field is a bright yellow, the printing is blue, and Reddy Kilowatt is red and blue. Signs are 10 ft wide and 5 ft high. Some 300 substations in less frequently seen spots will have similar signs.

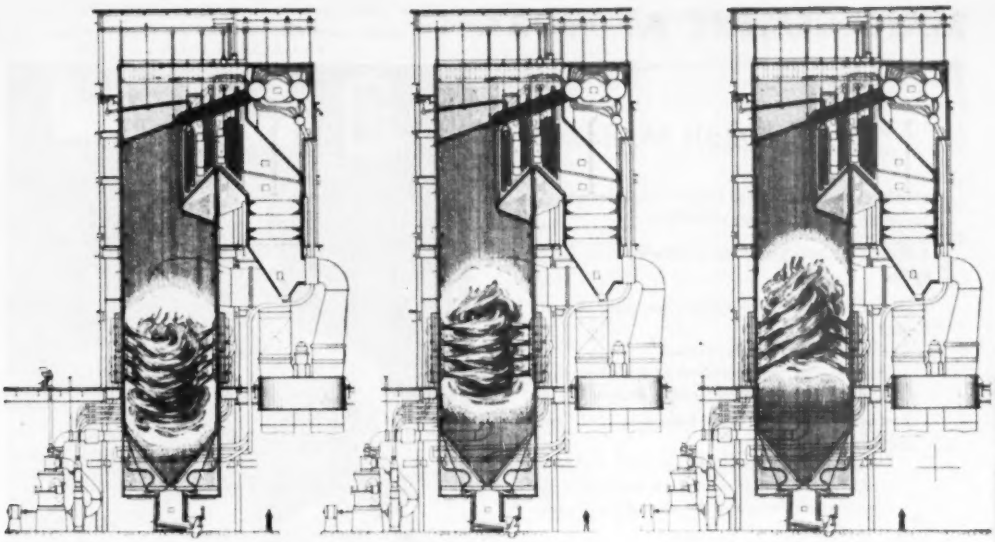
AD COPY THEMES

Alabama Power Co—Ad headed "Plan Now to Eat Better with a Home Freezer" plays up the advantages of a home freezer in each of the four seasons of the year.

Cape & Vineyard Electric Co—Under a pictograph map of its territory and a head, "Constantly Planning for You," the company tells of its expansion program.

Consolidated Edison Co of New York—In one of its series of ads using the news picture technique, Con Ed shows Bob and Ray, TV and radio comedy stars, sawing a cake of ice into 2-in. cubes. Caption suggests that ice cubes are easier and cheaper to make in a modern electric refrigerator.

Northern States Power Co—A series of appliance ads is made up of nine panels under which is run brief copy on the appliance featured. Eight of the nine are identical and picture a woman with a modern appliance. The ninth is a darker panel showing another woman using an out-of-date appliance. One ad showed a woman trying unsuccessfully to jam a lot of food into an ancient refrigerator. Head below read, "Is yours the refrigerator that's undersized and overstuffed?"



Advantages of the C-E Tilting Tangential Burner

The combination of tangential firing and the Tilting Burner accomplishes certain highly important results beyond the reach of any other burner or firing method presently available. These are:

1. Control of the temperature of furnace gases at the furnace exit which permits:
   - *(a) Control of steam temperatures over a wide range.*
   - *(b) Minimum use of desuperheating spray.*
   - *(c) Use of wide variety of coals.*
   - *(d) Accurate proportioning of superheater and reheater surfaces.*
   - *(e) Lower air heater maintenance.*
2. Substantial control over slagging conditions which results in:
   - *(a) More uniform furnace conditions.*
   - *(b) Better heat absorption.*
   - *(c) Minimum use of soot blowers.*

Recognition of the importance of these advantages throughout the utility industry is evidenced by the fact that more than 90 per cent of the C-E boiler capacity ordered by utilities in 1951 will be equipped with C-E Tilting Burners.

B-464

COMBUSTION ENGINEERING — SUPERHEATER, INC.

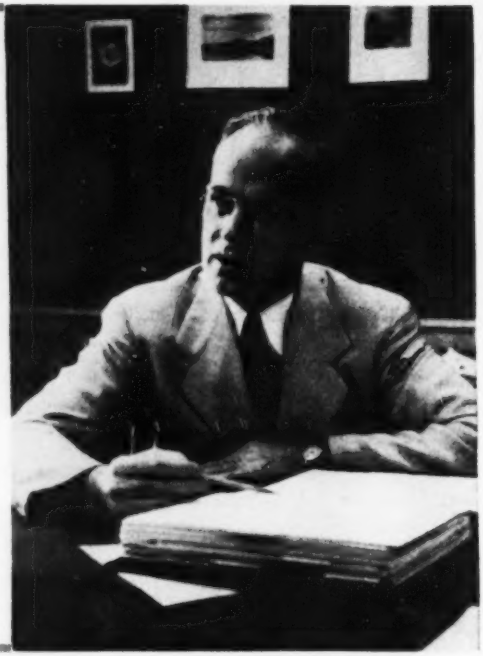
200 Madison Avenue • New York 16, N. Y.

ALL TYPES OF BOILERS, FURNACES, PULVERIZED FUEL SYSTEMS AND STOKERS; ALSO SUPERHEATERS, ECONOMIZERS AND AIR HEATERS

Ralph M. Besse

Vice President, Cleveland Electric Illuminating Co has these duties and responsibilities:

- **Serves on policy-making Administration Committee**
- **Supervises and is responsible for these departments:**
  - **Accounting (314 employees)—**
    Budgets and the operation of the company's unusual 13-month continuing budget
  - **Business Research and Valuation (91 employees)—**
    Compilation of statistical material, technical studies, forecasting, valuation estimating on construction costs and the allocation of costs in accounting
  - **Legal (33 employees)**
  - **Treasury (174 employees; 612 employees in all departments)**
- **Represents the company in community relations**



Vice President Works 12-Hour Day

(*See Front Cover*)

During last January, February, and March Ralph M. Besse, vice president of Cleveland Electric Illuminating Co, devoted 466 hours to company affairs at its headquarters on Cleveland's Public Square. He spent another 61 hours on activities for the electrical industry, and another 216 went to civic activities and public relations work.

That is a total of 743 hours, slightly more than 57 per week or just under 12 a day. During the same period he managed to wedge in a 9-day vacation. Otherwise his work hours would have averaged well over 13 a day for a 5-day week. That's about par for the course for this comparative newcomer to the electrical industry.

Such a schedule is routine, but his work isn't. A huge amount of his evening and weekend time is devoted to active participation in the affairs of the community opinion-making groups. The demand on him for speech-making alone is of such proportion as to constitute a major activity for the average executive.

Arriving at his office at 8:30 am Besse has a half hour for a hasty glance at the day's first mail and dictating letters before the daily meeting of the Administration Committee, policy-forming body of the company.

Rarely does this committee finish its discussions within the two-hours for which it is scheduled. The luncheon hour usually finds Besse huddled with a civic committee or using the time for a business discussion with one or two persons of influence from outside the company.

The afternoon is given over to appointments with business associates, in and out of the company, to consultations with the heads and higher eschelon employees of the four departments under his jurisdiction, and to answering telephone calls.

A Day with Besse . . . Typical Besse office day was Aug. 5. The Administration Committee—Pres Elmer Lindseth, Executive Vice Pres D. C. Ober, and Besse—met from 9 until after 11 am. Luncheon with a group outlining plans for the coming Community Fund lasted from 12:10 to 1:30 pm.

Back in his office he had a 2:30 appointment with the head of the Accounting Department on a matter of procedure. At 3 he met by appointment with a staff member on a budget matter. At 4 he found a discussion scheduled with a member of the company's public relations staff.

In between appointments he read the mail, dictated replies to half a dozen letters, returned six telephone calls, and checked the progress being made on a half dozen projects he was following. In all it was a fairly routine office day and not too strenuous as measured by his average day. But it was typical as Besse points out, in that too much of his time had been scheduled by others.

With this article Electrical World begins a series on industry key men and how they handle their jobs. Utility management assignments take many forms in terms of authority and function. Often the job is made to fit the man rather than the man the job. The riddle must be solved as each man comes up the ladder. For the presidents and industry executives who must make the decisions and for those holding jobs in the same classification as the man about whom we write, this series should have both interest and value.

Besse prefers being able to schedule more of his time himself. Yet he realizes that much deviation from his present open-door policy could easily curtail the assistance and advice he now gives to members of the CEI executive staff and their assistants, one of his primary duties. A change could also wall him away from the steady flow of ideas and suggestions which employees are encouraged to make.

His job as vice president primarily is one of planning, execution, and review of major projects and problems affecting the company. In addition the supervision and control of four divisions or departments falls to his lot. Less tangible, but almost of equal importance to his intra-company functions, is the community-wide and outside contact work he performs as a combination executive of a public utility and highly intelligent individual. The work of being active in civic affairs outside the company is part and parcel of CEI executive thinking.

Bosses Four Departments . . . The four of the company's 13 departments over which Besse has jurisdiction are Accounting, Legal, Treasury, and Business Research and Valuation. To the head of each of these Besse delegates wide authority. But because of the "open-door" policy he maintains, he has an intimate knowledge of the affairs of each. Often matters that arise at the meeting of the Administration Committee are taken up with the department head that afternoon. Otherwise he waits for his scheduled weekly meeting with his four department heads before broaching the subject.

While President Lindseth had the company's committee management plan of organization set up before Besse joined forces with him, the latter aided in formulating the formalized plan established Feb. 15, 1951.

Under the plan matters of general interest and concern to the company continue to be considered by the executive staff. But specialized matters of policy and planning, such as safety, public policy, economy, and procedures are handled by committees—labeled general management committees. On them, generally, would be executive staff members. Atop these is the Administration (or policy-forming) Committee. The two form the General Management Organization.

The General Management Organization is a planning, advisory, and control agency only. It is not an administrative or executive group. The responsibility for doing things is vested in the individual. The plans developed by the policy making groups are executed through another CEI management arm — the Functional Management Organization.

The Administration Committee is the top coordinating, planning, and control agency of CEI. Every work day that at least two of its three members are available a meeting is held in Lindseth's office at 9 am.

What Administration Committee Does . . . Specifically the body is responsible for:

- The review and approval of capital budgets and expenditures and of operating forecasts and budgets.
- Over-all control activity including the analysis of each month's operations and additional special data.
- Decisions on over-all day-to-day problems which do not fall within the area of responsibility of other general management committees, the executive staff, or executive staff individuals.
- Coordination of General Management Committee activities, with the latter deriving its authority from the Administration Committee.
- Coordination of the planning of major over-all company activities and over-all future planning.
- Review of salaries and extra compensation awards.
- Organization planning and executive development.

Besse's contribution is a razor-sharp, legally trained mind, excellent grasp on community and area affairs and problems, an honest desire to do an intelligent job of company and community building, keen insight into human faults and frailties, and a better-than-average knowledge of commerce and business.

Started as Company Lawyer . . . Though Besse has been with CEI only since 1948, his connection with the company started ten years earlier. At that time he was with the law firm of Squire, Sanders & Dempsey, of which firm he became a full partner in 1940. By 1944 he was devoting all of his time to his firm's CEI account. Four years later CEI made him a vice president and head of its Legal Department. He has since relinquished the work of general counsel but still takes a very active interest in legal matters.

Besse's outside activities for the company are a mixture of public relations and crusading for community improvement and betterment. He is a popular speaker. During the first six months of this year, he delivered 36 "set" speeches upon 14 subjects before a wide variety of groups, both within the area served by his company and far afield.

His outside activities, however, cover much more ground than speech making. He is up to his ears in a number of prominent opinion-forming clubs and organizations such as: Cleveland's Council on World Affairs, Cleveland Committee for Ohio Foundation of Independent Colleges, Huron Road Hospital, Community Fund, City Club, and the Ohio Chamber of Commerce.

Reads and Talks for Recreation . . . For recreation, this farm-bred and born (Congress Lake, Ohio) and legally trained (Heidelberg College of Tiffin, Ohio and U. of Michigan) executive turns to reading and discussions with a close group of friends. The company's library and clipping service, supplementary to reading the three local dailies, the "New York Times," the "Harvard Business Review," and Electrical World, keep him well abreast of the times.

Besse has already carved a niche for himself in the industry by his quick grasp of the fundamentals and his imaginative thinking. His contributions to CEI will not only enlarge his niche but will aid immeasurably in that company being able to attain its long-term goal.

MEETINGS

Air-Conditioning Load Talk . . .

. . . is planned for fall meeting of SEE's Engineering and Operation Section. Parley to be held Sept. 25-26 in Atlanta

Because of the constant rise in use of air-conditioning units in the region, a discussion on the "Effect of Residential Air-Conditioning Load on Distribution Systems" has been included on the program of the fall meeting of the Southeastern Electric Exchange's Engineering and Operation Section. The discussion will be led by A. J. May, division engineer supervisor, Gulf States Utilities Co.

Scheduled for Sept. 25-26 at the Biltmore Hotel, Atlanta, the meeting also will feature discussions on television interference, aluminum conductors, lightning arresters, and low short-circuit ratio.

TV Discussion . . . Television interferences with respect to 60 cycle power will be analyzed by R. W. Baker, chief distribution engineer, Georgia Power Co. The latest developments in aluminum conductors and installation for use in distribution systems will be reviewed by W. L. Rush, distribution and transmission engineer, Louisiana Power & Light Co.

A talk on the location of lightning arresters with regard to equipment and meters will be delivered by C. L. Wagner, a Westinghouse Electric Corp engineer.

The practicality of low short-circuit ratio for today's turbine generators will be explored by J. B. McClure, manager of General Electric Co's power generation section at Schenectady, N. Y. He is a co-author of an article on this subject which appeared in Electrical World on June 30.

Trends in utility accident prevention will be pointed out by W. F. Brown, Consolidated Edison Co of New York.

"Freedom of Power," a color movie, will be shown at the conference by General Electric.

EEI President to Speak

Bayard L. England, president of Atlantic City Electric Co and Edison Electric Institute, will address the Public Utilities Association of the Virginias meeting Sept. 19-20 at Greenbrier Hotel, White Sulphur Springs, W. Va. His topic will be "The Long Road Ahead for Our Industry."

CMP Discussion Planned

Operation and results of the Controlled Materials Plan will be discussed at the Annual Accounting Conference of the Missouri Valley Electric Association set for Sept. 29-30 at the President Hotel, Kansas City.

CALENDAR OF COMING EVENTS

Edison Electric Institute
Accident Prevention Committee, Sheraton Hotel, Rochester, N. Y., Sept. 15-16; Prime Movers Committee, Roosevelt Hotel, New Orleans, La., Oct. 6-7; AEIC joint meeting, Meter-Service Committees, Mayflower Hotel, Washington, D. C., Oct. 6-8; Electrical Equipment Committee, Roosevelt Hotel, New York, Oct. 13-14; Transmission - Distribution Committee, Hotel Adolphus, Dallas, Tex., Oct. 23-24.

Pennsylvania Electric Association
Annual Meeting, William Penn Hotel, Pittsburgh, Pa., Sept. 16-17; Fall Meeting, Electrical Equipment Committee, Irem Temple Country Club, Dallas, Pa., Oct. 2-3; Transmission - Distribution Committee, Penn-Alto Hotel, Altoona, Pa., Oct. 9-10; Fall Meeting, Systems Operation Committee, Hotel Roosevelt, Pittsburgh, Oct. 16-17; Industrial Committee, Bedford Springs Hotel, Bedford, Pa., Oct. 23; Fall Meeting, Meter Committee, Fort Stanwix Hotel, Johnstown, Pa., Oct. 23-24; Fall Meeting, Relay Committee, Robert Treat Hotel, Newark, N. J., Nov. 13-14.

***Illuminating Engineering Society**
Fall Technical Conference, Committee on Aviation Lighting, Corning Glass Works Center, Corning, New York, Oct. 2-3.

Northwest Public Power Association
Accounting Section, Congress Hotel, Portland, Ore., Sept. 18-19.

Public Information Program
Annual Workshop Conference, Edgewater Beach Hotel, Chicago, Ill., Sept. 18-19.

Public Utilities Association of the Virginias
Greenbrier Hotel, White Sulphur Springs, W. Va., Sept. 19-20.

***Chicago Electric Association**
Electrical Modernization Conference, Chicago Lighting Institute, Sept. 23.

New England Meter Engineers
Fall Meeting, Coonemesset Inn, Hatchville, Mass., Sept. 25-26.

Southeastern Electric Exchange
Fall Meeting, Engineering-Operation Section, Atlanta Biltmore Hotel, Atlanta, Ga., Sept. 25-26; Accounting Conference, Jung Hotel, New Orleans, La., Oct. 16-17; Sales Conference, Thomas Jefferson Hotel, Birmingham, Ala., Oct. 29-31.

Missouri Valley Electric Association
Accounting Conference, Hotel President, Kansas City, Mo., Sept. 29-30; Sales-Rural Conference, Hotel President, Kansas City, Mo., Oct. 8-10.

National Electronics Conference
8th Annual Conference, Hotel Sherman Chicago, Ill., Sept. 29-30 and Oct. 1.

California Municipal Utilities Association
20th Annual Conference, U. S. Grant Hotel, San Diego, Sept. 30-Oct. 3.

Wisconsin Utilities Association
Convention of Technical-Sales Sections, Schroeder Hotel, Milwaukee, Oct. 1-3.

International Association of Electrical Leagues
17th Annual Conference, Radisson Hotel, Minneapolis, Minn., Oct. 1-4.

***International Association of Electrical Inspectors**
28th Annual Meeting, Eastern Section, Statler Hotel, Washington, D. C., Oct. 2-4.

Iowa Utilities Association
Management Conference, Fort Des Moines Hotel, Des Moines, Oct. 6-7.

University of Texas
Power Distribution Conference, Department of Electrical Engineering, Austin, Oct. 6-8.

Indiana Electric Association
Annual Convention, French Lick Springs Hotel, French Lick, Ind., Oct. 8-10.

***American Welding Society**
33rd National Fall Meeting, Bellevue-Stratford Hotel, Philadelphia, Pa., Week of Oct. 19.

***National Association of Suggestion Systems**
10th Annual Convention, Drake Hotel, Chicago, Ill., Oct. 20-21.

National Farm Electrification Conference
Statler Hotel, Detroit, Mich., Oct. 20-21.

National Electrical Industries Show
Sponsored by Eastern Electrical Wholesalers Association; 69th Regiment Armory, New York, Oct. 21-24.

American Institute of Electrical Engineers
Fall General Meeting, Jung Hotel, New Orleans, Oct. 13-17; Middle Eastern District Meeting, Commodore Perry Hotel, Toledo, Oct. 28-30; Conference on Machine Tools, Ten Eyck Hotel, Albany, Oct. 29-31; Special Technical Conference on Electrically Operated Recording and Controlling Instruments, Benjamin Franklin Hotel, Philadelphia, Nov. 17-18.

National Association of Railroad and Utilities Commissioners
Annual Meeting, Hotel Marion, Little Rock, Ark., Nov. 10-13.

National Electrical Manufacturers Association
Annual Meeting, Haddon Hall Hotel, Atlantic City, N. J., Nov. 10-13.

Institute of Radio Engineers
Joint Computers Conference with American Institute of Electrical Engineers, Park Sheraton Hotel, New York, Dec. 10-12.

American Standards Association.
34th Annual Meeting, Waldorf-Astoria Hotel, New York, Nov. 19.

* Addition this week.

TELEVISION STUDIO became classroom of these sixth-graders, whose arithmetic lesson was televised to San Diego secondary schools all over city. Programs, which lasted one-half hour, are slated for wider use through fall and spring sessions of the school year

School TV Experiment a Hit in San Diego

Education via television, an experiment conducted last spring in the secondary schools of San Diego, has clearly established the need for using television in general education programs. So successful was this very limited experiment of 18 telecasts that plans now call for a program this fall on a much larger scale.

The experiment was made possible through the cooperation of the TV Distributors Committee of the Bureau of Home Appliances of San Diego County. They supplied and installed without charge 20 large-screen sets in 11 elementary, 4 junior high and 5 senior high schools for the telecasts.

Station Cooperates . . . With local TV station KFMB-TV providing the time and technical assistance free of charge, a series of 18 telecasts was arranged by the school system committee.

Three half-hour programs each week from the station studios featured individuals or entire classes from the particular schools responsible for the programs.

Typical classroom situations were presented, with many schools actually using the telecasts for their own classes covering the subjects involved. Among subjects covered were The Westward Movement and Modern California, The Characteristics of Sound, Arithmetic, Atomic Energy, Handwriting, American History, Art, Phonetic Approach to Spelling, Homemaking, and Vocational Guidance.

In addition to the 18 regular programs, students in the schools in the experiment viewed a number of network or local programs considered by the school committee as being of importance to their experiment. In many instances, students carried special invitations to their parents to view the telecasts and the public reactions, where traceable, were excellent. During each program, credit was given to the TV Distributors Committee of the Bureau of Home Appliances.

Public relations value of the Bureau's cooperation was a totally unexpected one, there being much evidence that viewers generally had a greater appreciation than ever for the Bureau because of its efficient cooperation with the schools.

According to J. Clark Chamberlain, secretary-manager of the Bureau, this was the first time in his knowledge that any such organization has cooperated in presenting a television program of this sort with the schools.

Continuing Program . . . To continue the experiment this fall, the Committee has agreed to furnish at least 40 sets, and more if desired, on a similar loan basis. KFMB-TV also has agreed to make its facilities again available without cost and plans are now taking shape under a full-time school TV program director.

The television industry has gained in the San Diego area from this experiment, for very many teachers have now a much clearer appreciation of television than ever before. Likewise, many students from homes without television sets have developed interest which could conceivably influence sales to a great extent. But, best of all, the experiment is clearly leading into what should eventually be widespread use of television in all schools to accomplish the purpose of overall education in a manner not envisioned before.

Certified Cold Cathode Lamps Hit Market

First shipment has been made of cold cathode fluorescent lamps approved under a new certification program undertaken by the Fluorescent Lighting Association. Eight lamp manufacturers are distributing the lamps, which are of two types: Type LP, for use with a minimum ballast or transformer voltage of 750 volts; and Type HP, for use with a ballast or transformer having an open circuit voltage of 835 volts or more.

Purpose of the certification program is to set up minimum requirements for the electrical and photometric characteristics of standard cold cathode lamps. Supervising the program is the technical director, who determines a member's qualification for certification. Basis for his judgment are tests of the lamps conducted by a central independent testing

agency. Only FLA members are qualified.

Lamp makers thus far approved are: Chicago Electrode Laboratories, Inc., St. Charles, Ill.; Cold Cathode Lighting Corp., Long Island City, N. Y.; Swedish Iron & Steel Corp., Westfield, N. J.; Voltarc Tubes, Inc, Norwalk, Conn.; Colonial Electric Products, Inc, East Paterson, N. J.; Pollak Luminescent Corp., Chicago; Alladin Lighting Corp., Johannesburg, South Africa; and Pittsburgh Outdoor Advertising Co, Pittsburgh, Pa.

Leaflet Tells Story of Poultry Brooding

Practically everything a farmer needs to know about poultry brooding with infrared lamps is contained in a 6-page leaflet prepared by the Farm Electrification Councils of Virginia and West Virginia working with Appalachian Electric Power Co.

Appalachian and other electric service organizations in the Virginias, along with the Extension Services, etc., distribute copies to farmers. Folder defines infrared energy in simple terms, states the advantages and disadvantages of brooding with it and describes types and sizes of brooders. Included is advice on construction of home-built brooders, wiring recommendations and operation.

A tabulation of 106 field checks shows experience with infrared brooding in the Virginias in the 1950-51 season. Mortality among 46,733 chicks brooded was 3.38%. Average number of chicks was 91 per 250-w lamp.

GE Estimator Has the Answers

"How much does it cost to operate?"

The major appliance division of the General Electric Co has made available to dealers a handy pocket-size estimator which provides the answer in a jiffy. A yellow translucent plastic envelope, open at both ends carries a listing on one side of home electric appliances, their estimated usage, and the kilowatt-hour consumption per month based on such usage.

On the other side is listed electric equipment used on the farm and operations involving the use of electric equipment, and the power consumption for such usage. Near the bottom of the envelope, on each side, is a clear "window" above which is listed rates of electricity per kilowatt hour. Inside of the envelope is a white card bearing on one side the name of the home appliance and on the other the farm equipment or operation and operating costs depending on the prevailing power rate.

To determine the specific cost in any instance, the white card is pulled through the envelope until the listing desired is seen through the window. The cost then is found by reading the figure directly below the power rate carried on the envelope.

Sales Incentive Kit

To help sales executives plan incentive campaigns, an informative sales promotion kit, "Simplified Incentive Tools," has been prepared by Cappel, MacDonald & Co. It includes sample copies of five of the company's prize broadsides, each with a self-mailer, displaying 50 to 60 merchandise prizes in the $5, $10, $15, $20, and $25 wholesale price ranges. Also included are ideas and instructions on how to use the broadsides for sales purposes, premium programs, and industrial efficiency campaigns.

FRESH AND JUICY is the way these apples remain the year round. They are kept in a cold storage room built through the cooperation of Rochester Gas & Electric Corp engineers

Cold Storage Room Keeps Apples Fresh

T. G. O'BRIEN, Commercial & Industrial Sales, Rochester Gas & Electric Corp

Apples are kept at the peak of quality and their fresh, juicy flavor is maintained year-round at the roadside stand of Vernon Smith of Greece, New York. This is the main benefit of a cold storage room built through the assistance and cooperation of refrigeration engineers and the farm service department of Rochester Gas & Electric Corp.

Apples from the Smith farm can be put into cold storage as soon as they are picked. Time and labor spent in taking apples to and from the nearest commercial storage plant have been eliminated.

One end of a barn has been converted into a cold storage room. In a space which otherwise was wasted, a 16x20x10-ft room was built, with insulated walls, ceiling and floor. A 1½-hp water-cooled condensing unit was installed. Total cost of the installation was about $1,500.

Cost of power for three months in the fall has been estimated to be about $11 per month for a storage place which will hold up to 1,000 bushels of fruit. The owner is so pleased with the installation that he plans to double his storage capacity in the near future.

Another Westinghouse Relay Development

New CO Relay

gives greater accuracy!

The Type CO Overcurrent Relay is available in Flexitest or standard rectangular projection case.

This latest advance in design gives a degree of accuracy heretofore unattainable in an induction disc relay. The reason—a new basic relay development—the "E" element.

The "E" element has four separate and independent adjustments to make it meet existing time curves accurately—very accurately! This high degree of accuracy permits faster protection for your lines and equipment.

For further assurance of accuracy the new CO Relay offers low-wave form and low-temperature error . . . micrometer adjustment of the permanent magnet . . . constant "pick-up" at all lever settings.

Ask your Westinghouse representative to show you the new CO Relay—he'll be glad to go over it feature by feature with you—or request a demonstration by writing to Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-40404

YOU CAN BE SURE ... IF IT'S Westinghouse

RELAYS

Meeting the Nation's Growing Power Load

Size no longer a barrier to Transformer Capacity

On paper, there's no limit to the capacity that can be built into a transformer. The prime stopper . . . size! Economical transmission of big blocks of power at higher voltages requires large transformers, that tax the capacity of ordinary manufacturing facilities and transportation to deliver them. The problem then . . . to boost capacity, but hold size and weight to deliverable limits.

More than a year ago, Westinghouse achieved a new peak of 145,000 kva. Recently, Westinghouse engineers raised the ceiling to 150,000 kva at 220 kv . . . in a Form-Fit unit. Form-Fit transformers can always be shipped more completely assembled.

End of story? No indeed! Transformer research, to keep pace with higher rated turbine-generator units, has been under way at Westinghouse for twenty years. Problems of weight and size are being solved as evidenced in the construction of a 190,000-kva transformer . . . within practical size, weight and cost limits. And . . . further than this . . . 220,000-kva Form-Fit units are even now on order and being designed and still will be shipped *factory-assembled*. Still greater capacity is on the way as the result of developments now in the laboratory stage.

This story of how Westinghouse engineers licked a tough problem is really a series of painstaking, individual development stories, all tied together by a keen insight into your needs today . . . tomorrow. You can count on this Westinghouse "thinking ahead" for all phases of utility service . . . it's keyed to the ever-changing, ever-growing needs of your system. J-97163

YOU CAN BE SURE... IF IT'S

Westinghouse

Form-Fit Power Transformers

A Westinghouse innovation in basic design of large power transformers is Form-Fit construction. Pancake-type coils are mounted vertically with large parallel cooling ducts. The core, stacked through and around the coils, forms a protective shell with advantages in both mechanical and electrical strength. The large plate area of the coils results in distribution of lightning surges across the winding, eliminating the need for special shields, arresters, or other internally mounted protective devices. Because short circuits set up magnetic fields that tend to force high- and low-voltage coils apart, Westinghouse Form-Fit Transformers are arranged with high- and low-voltage coils interspersed, so that these forces actually work against each other. The Form-Fit tank slips down over this compact unit. Increased cooling efficiency of this design, plus more compact construction and lighter weight, makes possible ratings heretofore impractical . . . results in installation savings.

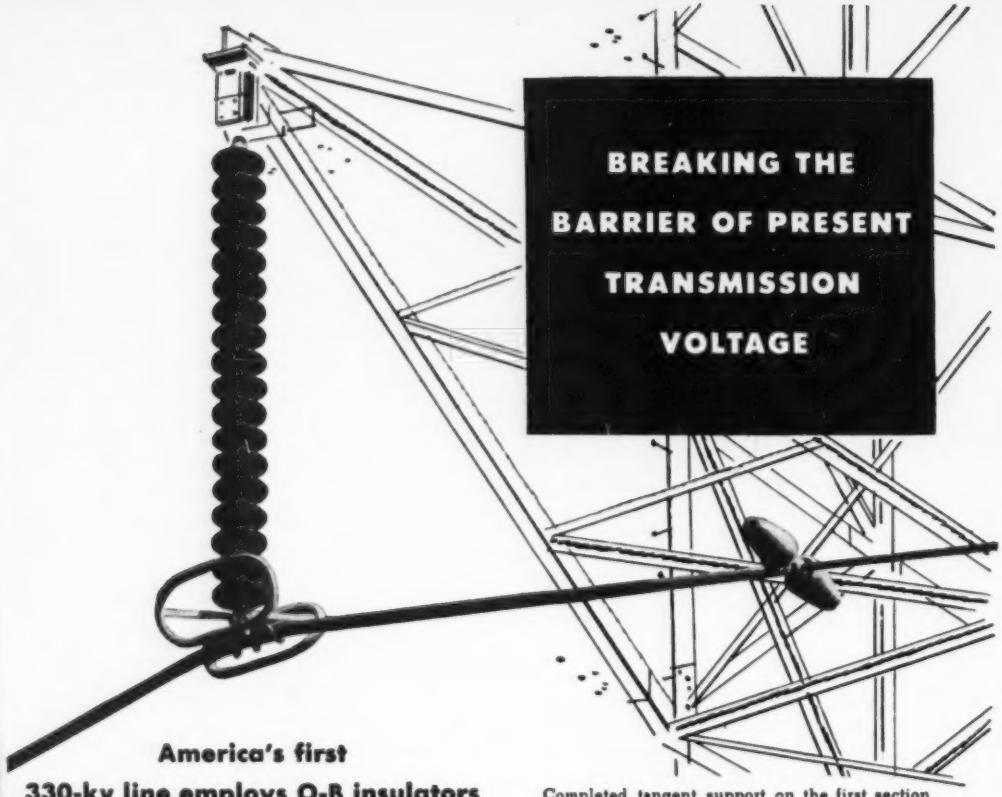
Network Transformers

In conjunction with a progressive utility group, Westinghouse pioneered the first secondary network installation in 1922. Since then Westinghouse has made important contributions to every major development in network transformer design, including the first three-phase units, the first low-loss, oil-immersed transformer, the first ventilated, Class B, dry-type transformer for indoor network service, and the first sealed, Class H, dry-type transformer for submersible and hazardous installations.

CSP® Distribution Transformers

Another development that has brought new operating economies to power distribution is the Completely Self-Protecting Transformer. It combines a distribution transformer with all its protective devices, factory-co-ordinated. These devices include H-V "De-ion®" arresters, protective links, and L-V thermal breaker complete with signal light and emergency control handle. These features protect against lightning, line lockouts, secondary short circuits, and transformer burnouts from overloads. In addition, they provide an automatic load check and permit emergency operation when required . . . assuring better continuity of service.

For information about these and other transformer developments, call your Westinghouse Electric Utility representative . . . or write Westinghouse Electric Corporation, P.O. Box 868, Pittsburgh 30, Penna.



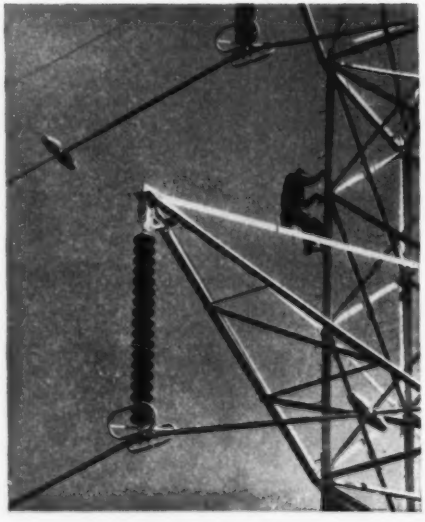
BREAKING THE BARRIER OF PRESENT TRANSMISSION VOLTAGE

America's first 330-kv line employs O-B insulators and hardware

Breaking through the barrier of present high voltage transmission practice, American Gas and Electric Corp. has completed the initial 61-mile section of America's first 330-kv interconnecting trunk line, ultimately to span from the coal deposits of the Appalachian area to the Lower Great Lake district. To be built by the operating subsidiaries of A. G. & E., this important project links a series of large generating plants with heavy load centers through the industrial heart of America.

O-B takes pride in supplying large quantities of standard 15,000-pound and 25,000-pound units for suspension and deadend strings, Cooline non-magnetic conductor clamps, and corona shields on this history-making development.

Completed tangent support on the first section of A. G. & E.'s new 330-kv transmission line. It is of interest that the insulator string shown supporting the 1.6-inch ACSR conductor is of standard O-B design; and the suspension clamp is the conventional O-B Cooline pattern. Adherence to service-tested components and practices is highly noteworthy in a new project of this size and voltage.



Ohio Brass

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4226-H

INDUSTRIAL RELATIONS

Board Gets Detroit Ed Dispute

UWUA workers return after one-day strike as fact-finding commission is set up to study disagreement

Four thousand Detroit Edison Co utility workers who went on a one-day walkout on Sunday, Aug. 31, were back at work the next day under orders of their international union, Utility Workers Union of America, CIO.

UWUA's two-year contract with Detroit Edison expired on July 31. A 30-day extension was agreed to by the union and the company, but negotiations proved fruitless and the walkout followed at midnight Saturday. A previously taken strike vote showed 80% of UWUA's members favored the strike action.

Bonine-Tripp Law Enforced . . . Michigan's Bonine-Tripp law forbids strikes in public utilities and provides for a governor-appointed fact-finding commission to study both sides and recommend settlement. This was the same procedure used in the Consumers Power Co case which was reported in Electrical World on July 7.

After the fact-finders have finished (they have 30 days in which to conduct their hearings under the law) an additional ten-day period is provided for a final settlement attempt by the State Labor Mediation Board. If this too fails, a strike is legal. Neither the company nor the union is obligated to accept the commission's recommendations.

Orderly picketing of all Detroit Edison installations began Sunday, but workers have returned to their jobs on all shifts. UWUA President Joseph A. Fisher, in a telegram to Nolan Leach, president of Local 223, ordered workers to return pending outcome of the fact-finders, but challenged the legality of the law.

Fact-Finding Board Make-Up . . . The governor's fact-finding commission consists of Ronald W. Haughton, umpire between the Ford Motor Co and the UAW-CIO; Edwin W. Gemrich, Kalamazoo attorney (he served on the commission in the Consumers Power Co case in July); and Father Raymond G. Clancy, All Saints' Catholic Church of Detroit. In addition Sylvester F. Leahy, director of employee relations for Detroit Edison, and Nolan Leach of the union, will serve on the commission as non-voting members.

At issue in the dispute are 24 points, including two on wages and the rest on company and union requests for changes in the old contract.

Union wage demands include a 15¢ hourly increase plus increases in differentials. Edison has offered a 4¢ basic hourly increase with a cost-of-living escalator which would provide an additional 3¢ an hour now with more later if living costs rise. Edison also has offered to increase afternoon and night shift differentials, now 5 and 8¢, to a flat 10¢ for both shifts.

During the one-day walkout supervisory personnel kept service going. Edison officials have pledged maintenance of utility service in any event.

Ohio Edison and UWUA Agree on 11½¢ Pay Hike

Ohio Edison Co and a negotiating committee representing nine locals of the Utility Workers Union of America, CIO, signed an agreement, subject to ratification by the members. If ratified, it must be approved by the Wage Stabilization Board.

The new agreement is for a period of two years from July 1, 1952, subject to reopening on basic rates of pay only on July 1, 1953. The former contracts expired June 30, 1952 but were continued during negotiations.

The new contract provides for a general average wage increase of 11½¢ an hour, modified union shop applicable to new employees, expanded sick leave program, provisions for incapacitated employees, increase in shift differentials from 4¢ to 5¢ on second shift operations, from 6¢ to 7¢ on third shift operations; improved vacations in Akron, Youngstown, and Toronto divisions to two weeks after two years instead of two weeks after three years to make them uniform with other divisions; and inauguration of hospitalization and surgical program.

Court Reverses Ruling of NLRB on Supervisors

Employers may blacklist ex-supervisors for nonsupervisory jobs as a result of a court ruling reversing the National Labor Relations Board.

The Federal Court of Appeals in San Francisco, recently, upset the board's decision that the Texas Co violated the Taft-Hartley Act by refusing to rehire an ex-foreman. The foreman was fired when he refused to do production work while the oil workers union was striking the company's Los Angeles oil refinery. When he later applied for a production job, the company turned him down because of his conduct as a foreman.

NLRB will probably appeal to the Supreme Court.

LABOR BRIEFS

Based on 500 reports to the Securities & Exchange Commission in 1951 and 1952, American Management Association has analyzed sales, profits and the compensation of the three highest paid officials in each company, as reported by firms listed on the New York Stock Exchange. This survey showed that salaries paid to top company officers have increased 5.3% in 1951 over 1950, bonus payments were reduced by almost 13% and contributions to retirement funds increased by about 11% for a net increase in total compensation of 2.3%.

A move is underway to unionize the employees of the Nova Scotia Power Commission at Liverpool, N. S. This follows action by the International Brotherhood of Electrical Workers, AFL, who announced organization of the employees of the New Brunswick Electric Power Commission, and demanded a tangible wage increase. Suddenly the union deferred this move when the provincial government threatened to hold a provincial election as a protest against the demand instead of in late September as originally planned.

Carey H. Brown, chairman of the Engineering Manpower Commission, has estimated that the graduating class of 1953 will produce only about 20,000 engineers.

New England PS Stock Plan

Compromise agreement on distribution of utility's holdings has been reached. SEC indicates approval of proposal

A compromise agreement on the distribution of stock holdings of the New England Public Service Co has been reached according to the Securities and Exchange Commission.

This agreement calls for the distribution of Nepsco portfolio stock on the basis of 82% to preferred stockholders and 18% to common holders. It differs from the plan now on file with the SEC which would give the preferred stockholders 75% and the common holders 25%.

Interested Parties in Agreement . . . SEC said it was informed that the agreement has been signed by counsel for the New England Public Service Co, Augusta, Me., and Northern New England Co, holder of a block of common stock in Nepsco; by all the representatives of the committees participating on behalf of the preferred and common stockholders of Nepsco and shareholders of Northern, and by counsel for certain preferred stockholders of Nepsco.

SEC officials stated that its Division of Public Utilities has indicated that it will support a plan along the lines of the agreement. They said that the agreement provided that the effective date of the reorganization plan shall be March 15, 1953, subject to commission approval and enforcement by the appropriate U. S. District Court.

However, provision is made for appropriate dividend adjustments in case the distribution is made before or after the effective date. Provision is also made for the payment of reorganization expenses and other liabilities of Nepsco.

Stocks to Be Distributed . . . Under the compromise agreement, holders of preferred stock would receive, for each share thereof, the following shares of portfolio stocks:

- $7 Preferred Stock—6 shares of common stock of Central Maine Power Co, 2.8 shares of common stock of Public Service Co of New Hampshire, and 1.3 shares of common stock of Central Vermont Public Service Corp.
- $6 Preferred Stock—5.25 shares of Central Maine common, 2.45 shares of Public Service of New Hampshire common, and 1.15 shares of Central Vermont common.

Balance to Common Holders . . . After preferred stockholders have received their stock distributions, common stockholders will receive an initial allocation of Nepsco portfolio stocks.

The agreement further provides that Nepsco will file an amended plan embodying the substance of the agreement as soon as possible.

PSC Denies Rehearing on Separate Billing Order

Utah Public Service Commission has denied a petition for a rehearing on a recent order authorizing separate billing of Utah Power & Light Co customers for special taxes.

The petition was filed by Ogden City which was one of the cities coming under the order with its 2% franchise tax.

In the order the commission had authorized the company to bill its customers separately in communities where special taxes have been levied. The commission held that all matters were fully considered and determined by the commission in its first report, and that with no new or additional evidence or changed conditions, it must deny the request.

Recently the commission denied a like petition by Ogden City on a similar authorization to the Mountain States Telephone & Telegraph Co. This case has been appealed to the Utah Supreme Court.

SEC Approves Purchase

Niagara Mohawk Power Corp has received Securities and Exchange Commission approval to acquire from J. B. Wise, Inc., a hydro plant and related facilities located on the Black River in Watertown, N. Y., together with 238 shares of common stock and 14½ shares of preferred stock of Beebee Island Corp. Niagara Mohawk is to pay $179,053.26 for the power plant and $19,946.74 for the Beebee stock. It now owns about 83% of the outstanding voting stock of Beebee.

FINANCIAL BRIEFS

American & Foreign Power Co's stock dividend proposal (10¢ in cash for each share plus one additional common share for each 100 shares of outstanding stock) has been scheduled for Securities and Exchange Commission hearing on Sept. 16.

Scranton Electric Co has placed privately $7.5 million first mortgage 3⅜% bonds, due Sept. 1, 1982 through Kidder, Peabody & Co. Of the total $3 million has been issued, $3 million to be issued on Jan. 15, 1953, and $1.5 million on April 1, 1953.

Merger of Consolidated Electric & Gas Co into Central Public Utility Corp has become effective under the amended plan approved by the Securities and Exchange Commission and the courts.

Columbus & Southern Ohio Electric Co has received Ohio Public Utilities Commission approval to enter into a maximum loan agreement of $19 million which will run for two years from Sept. 10, 1952. Interest on the loan is to run at 3% on borrowings for the first year and 3¼% in the second year. A stand-by charge of ½ of 1% is to be paid on the unused portion of the loan.

Although Dayton Power & Light Co's gross revenues have increased $4.2 million for the 12 months ended June 30, 1952, the earnings available for common stock have increased only $1,315, according to the quarterly report issued to security holders by Pres Kenneth C. Long.

California Electric Power Co has received Federal Power Commission approval to issue 350,000 shares of common stock, but has denied the company's request that the issuance be exempted from FPC's competitive bidding rules.

Foster Wheeler Corp has sold $5 million unsecured 4¼% note due in 1967 to Metroplitan Life Insurance Co.

Today in Utility Finance

YIELDS (%)

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
1952									
Sept 4	**2 96**	**3 00**	**3 16**	**4 09**	**4 26**	**4 61**	**5 20**	**5 57**	**5 99**
Aug. 28	2.96	3.01	3.16	4.09	4.27	4.62	5.24	5.57	6.00
2nd 1952	2.95	3.00	3.09	4.05	4.31	4.60	5.38	5.85	6.42
1st 1952	2.95	2.99	3.13	4.11	4.29	4.66	5.35	6.03	6.47
4th 1951	3.02	3.07	3.21	4.32	4.50	4.91	5.42	6.18	6.84
3rd 1951	2.87	2.91	3.04	4.05	4.27	4.61	5.52	6.24	7.05

Data: Reis & Chandler, Inc.

EARNINGS

Company	Period Months Ended		Net Income 1952	Net Income 1951	Earnings Per Common Share 1952	Earnings Per Common Share 1951
California Oregon Power	12	July	$2,393,100	$2,408,555	$	$
Consumers Power	12	July	20,071,606	19,881,260	2.70(a)	2.94(a)
Electric Bond & Share	12	June	5,561,938	6,233,768	1.06	1.19
Gulf States Utilities	12	July	6,656,862	5,839,934	1.71(b)	1.60(b)
Iowa Southern Utilities	12	July	872,525	848,392	1.26(c)	1.75(c)
Middle South Utilities, consolidated	12	July	12,459,076	10,304,654	1.99(e)	1.79(e)
Public Service Co of Indiana	12	July	9,525,534	8,167,400	2.42(f)	2.28(f)
Puget Sound Power & Light	12	June	3,555,148	3,866,977	.....	.....
Shawinigan Water & Power	6	June	2,743,053	2,363,222	.....	.....
Southern Canada Power	10	July	981,797	919,872	.....	.....
West Penn Electric, consolidated	12	July	12,044,350(g)	10,558,669	2.04(h)	3.00

Notes—(a) Based on 6,176,693 shares in 1952 and 5,615,176 shares in 1951; (b) Based on 3,124,168 shares in 1952 and 2,884,590 shares in 1951; (c) Based on 566,161 shares in 1952 and 399,433 shares in 1951; (e) Including tax reduction due to amortization of emergency facilities; (f) Based on 3,595,367 shares in 1952 and 3,249,199 shares in 1951; (g) Excluding special tax adjustment of $159,000 covering tax reduction in Federal income tax due to amortization of certain facilities under Necessity Certificates; and (h) Before special tax adjustment.

FINANCING

Company and Description	Amount of Offering (000)	Offering Price	Yield to Public
WEEK OF SEPTEMBER 4–10			
Bonds			
Arkansas Power & Light—1st mtg 3½% 1982	$15,000	100.929%	3.45%
City of Nashville, Tenn.—electric revenue 1954–1981	3,500	various	1.15–2.40%
WEEK OF SEPTEMBER 11–17			
Preferred Stock			
Duquesne Light—140,000 sh $50 par	$7,000	.....	.....
Columbus & Southern Ohio Electric—90,000 sh cum $100 par	9,000	.....	‡
Common Stock			
Columbus & Southern Ohio Electric—300,000 sh	$	.....	‡
SCHEDULE FOR SEPTEMBER TO DECEMBER			Bid Date
Bonds			
Duquesne Light—1st mtg 1982	$14,000	.....	Sept. 22
Pacific Power & Light—1st mtg 1982	7,500	.....	Sept. 22
Central Illinois Public Service—1st mtg 1982	5,000	.....	Sept. 23
Appalachian Electric Power—1st mtg 1982	17,000	.....	Sept. 23
Washington Water Power—1st mtg 1982	30,000	.....	Sept. 30
California Oregon Power—1st mtg 1982	7,000	.....	*
Utah Power & Light—1st mtg 1982	10,000	.....	Oct. 15
Carolina Power & Light—1st mtg 1982	20,000	.....	Oct. 20
Virginia Electric & Power—1st mtg 1982	20,000	.....	Oct. 21
Long Island Lighting—1st mtg. 1982	20,000	.....	Nov. 18
New Orleans Public Service—1st mtg 1982	6,000	.....	Dec. 15
Notes			
Appalachian Electric Power—serial 1956–1967	$6,000	.....	Sept. 23
Preferred Stock			
Central Illinois Public Service—50,000 sh cum $100 par	$5,000	.....	Sept. 23
Common Stock			
Utah Power & Light—167,500 sh (being offered stockholders on 1-for-10 basis, record Sept. 5 to expire Sept. 25; stockholders allowed over-subscription privileges)	$4,816	$28.75	6.26%
Long Island Lighting—599,942 sh (to be offered commonholders on 1-for-7 basis, record Sept. 24 to expire Oct. 9; Blyth & Co—First Boston Corp. underwriters)	.....	.....	.....
California Electric Power—350,000 sh	.....	.....	Oct. 7
California Oregon Power—250,000 sh	.....	.....	*
Idaho Power—225,000 sh	.....	.....	.....
Iowa Public Service—150,122 sh (to be offered commonholders on 1-for-8 basis, record Sept. 25 to expire Oct. 14; stockholders to be allowed over-subscriptions; no underwriting)	.....	.....	.....
UNSCHEDULED AND UNDER CONSIDERATION			
Bonds			
Central Maine Power—1st general mtg	$6,000	.....	.....

* Bids to be opened during first two weeks of October.
‡ Dillon Read & Co. underwriter.

6 PUD's Liability . . .

. . . in purchase of Puget Sound Power & Light facilities is worked out in new plan

Despite elimination of the $15-million Whatcom County distribution system from a new PUD plan for purchase of the Puget Sound Power & Light Co, amount of the necessary bond issue has been reduced only $8 million to $107 million, a study of the plan discloses.

With the Whatcom PUD "not prepared to participate at this time," the six remaining PUD's, Chelan, Snohomish, Skagit, Jefferson, Kitsap and Thurston, propose to pay $89,490,000 for the Puget properties, based on a valuation made June 30. The remaining $17,510,000 in the revenue bond issue would go for current assets, estimated at $3,600,000, working cash, construction cash, prior service pension fund and acquisition costs, according to Harvey Benson of Skagit, chairman of the executive board of the six participating districts.

Disparity Explained . . . Asked to comment on disparity between the reduction in the proposed bond issue and the elimination of the Whatcom properties, PUD officials asserted the difference was due to capital additions made since the first purchase plan was proposed a year ago and an increase in funds allotted for construction.

Chelan and Snohomish counties, which already have acquired their distribution systems, would be liable for bond issues of $11,202,000 each, representing a one sixth share in the production pool, which also includes distribution systems in King, Pierce, and Kittitas Counties.

Cost to Other PUDs . . . The other PUD's would be responsible for varying amounts, ranging from $11,703,000 for Jefferson to $28,285,000 for Kitsap, representing the price of the distribution properties in each respective county in addition to the share in the production pool. Thurston would be liable for $21,696,000, Skagit for $22,912,000. Under the seven-county plan, shares ranged from $9,049,000 for Chelan and Snohomish to $24,448,000 for Kitsap.

The PUD's are now studying the R. W. Beck & Associates report.

ALLIS-CHALMERS

Release these

FOR FULL

UNIT SUBSTATIONS

Men PRODUCTION

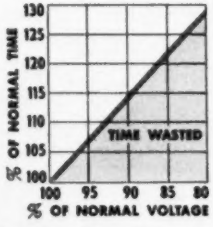
HOW MANY WORKERS in your plant are tied to low producing machines . . . turning out less work than they should because undervoltage cuts machine output? And how many more are slowed down on benchwork, layout and inspection because undervoltage pulls illumination below adequate levels? Even properly designed distribution systems may no longer be sufficient because of new machinery that has been added and production schedules that have been stepped up.

When your plant operates at 10% undervoltage, torque available from squirrel-cage motors driving production machines is 19% below normal . . . infra-red bulbs take nearly 20% longer to deliver rated amounts of heat . . . workers take up to 25% longer to do their jobs and accident rates are high because illumination levels drop as much as 30%.

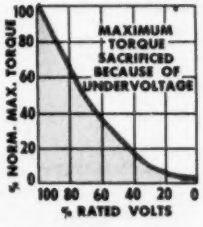
Recruit manpower from within your own plant by getting rid of low illumination levels that rob worker efficiency. Recover production time wasted by slow producing machines. Install Allis-Chalmers LCS Unit Substations at load centers and eliminate excessive line drop by shortening low voltage cables.

You can count on the cooperation of experienced Allis-Chalmers substation engineers in working out your distribution system. Allis-Chalmers LCS Load Center Unit Substations are neat, compact, easy to install and provide protection to personnel. Get in touch with your A-C representative, or write Allis-Chalmers, Milwaukee 1, Wisconsin for bulletins 11B6285A, 11B6325B, and 11B6895. A-3373

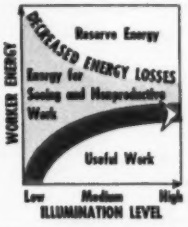
HOW UNDERVOLTAGE WASTES MAN-HOURS . . . CUTS PRODUCTION



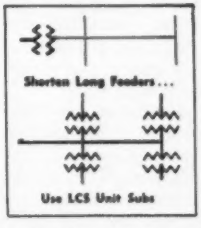
TIME IS WASTED when undervoltage is distributed to infra-red bulbs and other heating devices. It takes longer to deliver the same amount of heat . . . longer to do a given job. In one plant, for instance, drying time for black-painted sheet steel was increased from 11 minutes to 18 minutes by a 10% reduction in voltage.



JOBS TAKE LONGER because torque and horsepower drop when voltage drops. Less torque means lighter cuts on lathes, shapers, drill presses, and other machine tools. Motors overheat on undervoltage, burn out faster. More time must be spent on each job. More overhead . . . more man-hours have to be figured into every job.



WORKERS SEE BETTER, produce more when full voltage is maintained. Illumination was increased from 6 to 16 ft. candles (equal to an increase from 83% to full voltage) . . . resulting in a 9% increase in production, 20% decrease in accidents. In another case, production increased 25% with improved illumination.



A MAJOR CAUSE of undervoltage is the voltage drop in secondary feeders. Long lines of heavy copper carrying power at low voltage may prove inadequate as production schedules are stepped-up and new machines added. Install Allis-Chalmers LCS Substations at load centers to reduce voltage drop and increase production.

ALLIS-CHALMERS

Appliance Controls Wither

Cut in funds to government agencies, improvement in materials supplies are reasons for suspension of curbs

Economic controls are shriveling. As far as the appliance business is concerned, they will be little more than unpleasant memories by the end of the year.

One of the chief reasons for their demise is the cut in operating funds given the control agencies by Congress. National Production Authority, for example, had to drop more than 20% of its employees; Office of Price Stabilization was forced to cut its staff in half. Lacking personnel, they have to give up even trying to control everything.

More Materials . . . But just as compelling a reason for suspending controls is the fact that they are no longer badly needed. Except for a few lingering effects of the steel strike, materials are in good supply, production has "caught up," and prices of many manufactured goods are soft.

Here is the way the controls picture now shapes up:

Prices . . . OPS has broadened its policy of suspending price ceilings to include a long list of manufactured goods. In addition, it has liberalized the standards it will use in deciding just when an item is ready for the suspension treatment.

Heretofore, OPS has been experimenting with suspension on a small-scale, using primary commodities as guinea pigs. To qualify for suspension, these items had to meet one simple test: Are market prices sufficiently below ceiling to make an early return to the legal maximum unlikely?

Where the answer was yes, producers were exempted from OPS filing and record-keeping requirements. But the ceilings still exist, and complete controls can be reimposed anytime prices reach a near-ceiling trigger level —90% of ceiling, in the majority of cases.

Up until last week, OPS had suspended ceilings on only a score of commodities, such as burlap, hides, and tallow. Now four groups of fabricated goods have been added to the list, including radios, television sets, record players and parts, soft-surface floor coverings, and bedding. Ceilings came off the goods at every level.

In the next few weeks, ceilings on small appliances may be suspended, too.

It wasn't easy to decide that these items were ripe for suspension. Really reliable figures, for measuring the spread between market and ceiling prices, are hard to come by. One reason is there isn't much price uniformity in manufacturers.

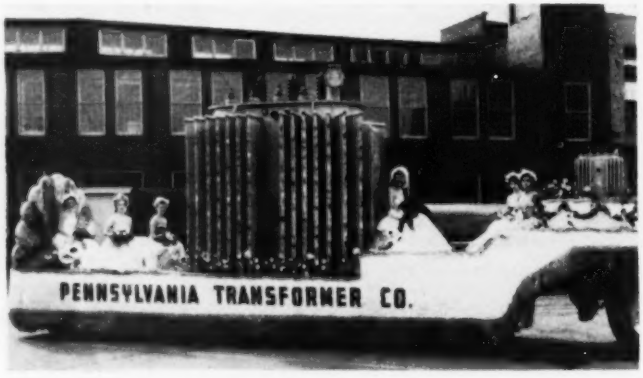
So OPS officials had to turn to other things to gauge the relative softness of any given market; current production and capacity; inventories; availability and prices of materials; and margins, earnings and average realizations.

Because there's no such thing as a daily market quotation for, say, TV sets, OPS is going to set up a "price-watching" system, based on special wholesale price indexes compiled by the Bureau of Labor Statistics. TV prices would be measured in terms of this index and trigger levels set at 3% below ceilings. (OPS feels that this narrow margin is safe enough since prices of manufactured goods are less volatile than commodity prices.)

Credit—Removal of Regulation W has already produced a tidy jump in the volume of installment credit outstanding. But, between now and Christmas, economists expect an additional increase of about $1.5 billion. Apparently consumer demand for goods is strong and solid, now that the big down payment requirement has been dropped.

The end of Regulation X is expected to boost appliance demand even further. Again, whittling away the down payment would be the day, since it would bring new buyers into the housing market. Bigger demand will mean new starts (though probably not enough to equal 1950's all-time record). And more new starts mean more customers for large and small appliances.

Production—While metal shortages may have forced appliance manufacturers to redesign models and substitute materials, they didn't seriously

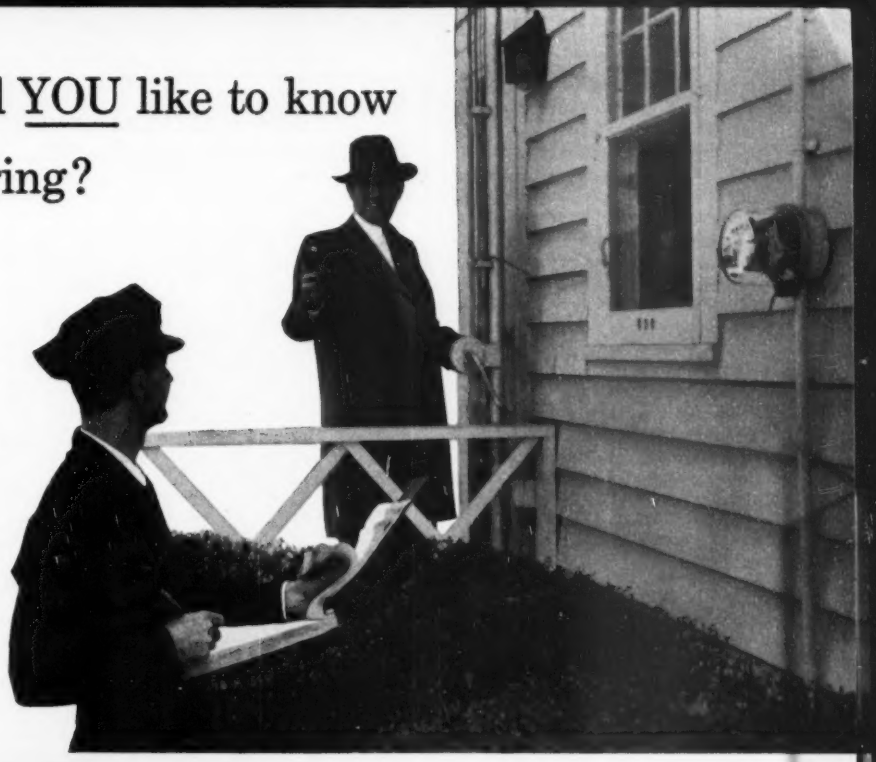


Color Invades Transformer Field

Pennsylvania Transformer Co introduced this hand-painted transformer at the recent Canonsburg (Pa.) Sesquicentennial Parade of Progress. The overall transformer was covered with a pastel shade of green paint in contrast to the dark blue-black color used on most substation transformers. Colorful floral designs were hand-painted on the radiators and tank of the 3,000-kva unit.

Debut of the colored unit may pave the way for more decorated equipment. Hand-painted units could add charm and color to outdoor electrical utility substations located in residential areas, the company believes.

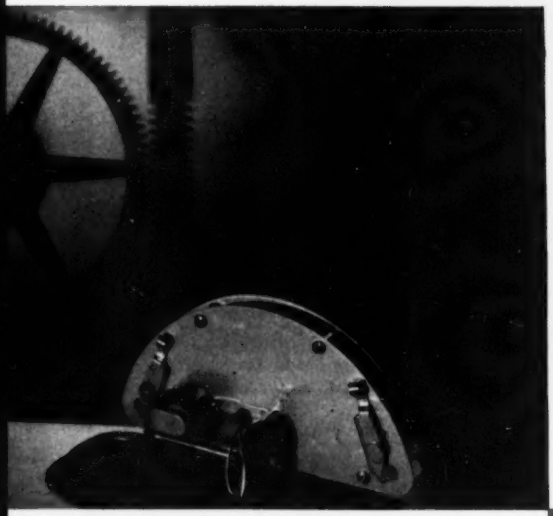
What would YOU like to know about metering?



Would you like to know how modern meters can promote good public relations?

Would you like to know how accurate meters facilitate fair pricing? How dependable meters can reduce operating costs? And, how well-designed meters save operating and maintenance expense for your company?

If you are interested in the answers to these and many other questions, get your copy of "Metering for Profit." It's yours for the asking.



WHAT IS A SHADOWGRAPH? This illustration, from "Metering for Profit," shows the magnifying device used to assure an exact adjustment of the mesh between the worm spindle of a meter disk and the worm wheel of the register. The use of the shadowgraph is another step to assure that your meters register fully all kilowatthours consumed.

Only Measured Facts are Known Facts

SANGAMO ELECTRIC COMPANY

SPRINGFIELD, ILLINOIS

Write for "Metering for Profit"

A non-technical report to utility company personnel concerning watthour meters. If you are interested in metering and its effect on profits, it should be "must reading." The coupon will assure you of a copy.

IT'S FREE!

SANGAMO ELECTRIC COMPANY, SPRINGFIELD, ILLINOIS

Please send my free copy of "METERING FOR PROFIT"

YOUR NAME_____

TITLE_____

COMPANY_____

CITY and ZONE_____ STATE_____

SM52-11

cripple output. And now despite the steel strike, the outlook for high production is still good.

Daily it is becoming more and more apparent that NPA's metal allocations aren't going to pinch. For one thing, demand still doesn't warrant capacity —or pre-Korea—operations. For another, the actual "tickets" issued are good for 80% of the copper and aluminum consumed before Korea and practically all the steel. Of course, appliance makers may run into trouble, finding a mill that can handle an order in time.

Prospects for next year look even brighter. In the first quarter, appliance manufacturers will get virtually all the copper and aluminum they will want. Though the steel picture is a bit cloudier, producers have been told that they need not worry at all.

Anaconda Ready to Start Work on Aluminum Plant

Anaconda Copper Mining Co is ready to go ahead with the construction of an aluminum metal producing plant at Columbia Falls in Flathead County, Mont.

The $45-million plant originally was to have been located at Kalispell center of the agricultural section of Flathead County. Residents, however, feared the plant might cause possible damage to crops and livestock. Anaconda denied there would be such damage.

The company also announced arrangements have been completed to obtain alumina, from which aluminum is made, from Reynolds Metals Co's new plant being erected at Corpus Christi, Tex.

SALES ASSIGNMENTS

COMPANY STAFFS

Westinghouse Electric Supply Co has appointed Philip R. Blackburn and B. Donald Beacher apparatus and supply manager and sales manager, respectively, for its Middle Atlantic district. They will make their headquarters at Philadelphia. The company also named Hugh T. Snapp branch manager of the apparatus and supply division of the Wilmington (Del.) office.

REPRESENTATIVES

Springfield (Ill.) Boiler Co, manufacturer of power plant steam generating equipment, has appointed Homer J. Hansen as its sales representative. He is located at 608 Grand Theatre Building, Peachtree St., Atlanta, Ga.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

California — Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing two oil-pressure, actuator-type governors with pumping equipment for controlling the wicket gate and runner blade operations and regulation of 9,400-hp., 150 rpm turbines for Nimbus Power Plant, Central Valley Proj., Spec. DS 3788.

Conn., Norwalk — Connecticut Light & Power Co., Newington, power plant, Manresa Island, $15,000,000.

Ill., Chicago—S & C Electric Co., 4435 N. Ravenswood Ave., 12,000 sq. ft. factory addn, $160,000. Milton S. Carstens, 1 N. La Salle St., Zone 2, archt.

Md., Annapolis—P. Wks. Office, U. S. Naval Academy, Annapolis, transformer and switching station, U. S. Naval Radio Station, Spec. 31671. Plans deposit $10.

Mich., Detroit — City, Stephen F. Resh, pres. P. Lighting Comn., Contr. PL-11, 1 story, bsmnt., brick, concrete electric sub-station, incl. water supply, sewage and storm drainage sys., concealed conduit, George R. Thompson, Guardian Bldg., city engr.

Montana—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing three 8,400 hp., 105.9 rpm vertical-shaft single-runner, fixed blade, propeller-type hydraulic turbines for Little Porcupine Power Plant, Missouri-Souris Div., Missouri River Basin Proj., Spec. DS 3793.

N. C., Raleigh—State Hospitals Bd. of Control, Raleigh, altering outside lighting sys. and electric distr. sys. at State Hospital. Approx. $100,000. Plans deposit $15. Wiley & Wilson, Lynchburg, Va., engrs.

Oregon—U. S. Eng., City-County Airport, Walla Walla, Wash., installing non-embedded parts of turbines, governors, fishway controls, etc. at McNary Dam. Inv. 53-17.

Pa., Pittsburgh — Pittsburgh Radio Supply House, Inc., 1406 Chamber of Commerce Bldg., television station, $1,170,000. M. W. Garrison, 1519 Connecticut Ave. N.W., Wash., D. C., consult. engr.

Tenn., Memphis — WMPS Inc., 112 Union Ave., television station, $716,000. Craven, Lohnes & Culver, Munsey Bldg., Wash., D. C., consult. engrs.

Tex., Hamlin—West Texas Utilities Co., Hamlin, electric power plant imprvs. and some distr. extens. $117,-857.

Tex., Houston—KTRH Broadcasting Co., Main and Texas Ave., television station, $1,221,000. George C. Davis, Munsey Bldg., Wash., D. C., consult. engr.

Va., Roanoke — Times-World Corp., 201 W. Campbell Ave., television station, $525,000. George C. Davis, Munsey Bldg., Wash., D. C., consult. engr.

Wash., Seattle—Fisher's Blend Station, Inc., 100 Fourth Ave. N., television station, $1,115,460. A. D. Ring & Co., Munsey Bldg., Wash., D. C., consult. engrs.

W. Va., Wheeling—Tri-City Broadcasting Co., Box 567, Bellaire, O., television station, $842,100. William L. Foss, Inc., 927 15 St. N.W., Wash., D. C., consult. engr.

Low Bidders & Contracts Awarded

California—Wolfe & Mann Mfg. Co., 28 and Sisson Sts., Baltimore, Md., LB. $71,591, one main control board and one graphic and auxiliary control board for Folsom Power Plant, Central Valley Proj., Spec. DS 3746. Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. Bids Aug. 21.

Fla., Jacksonville — General Motors Electro-Moline Div., La Grange, Ill., Owner Builds, $2,000,000. PLANT ADDNS., 25 St. and Kings Rd.

Fla., Tampa — Ellis-Thompson Co., P. O. Box 1132, Tampa, Fla., LB, $466,-173, armament-electronics repair shop, warehouse, and railroad spur at MacDill Air Force Base, Inv. 53-3, TAMPA, FLA. U. S. Eng., P. O. Box 4970 Jacksonville, Fla. Bids July 31.

Missouri — Elliott Constr. Co., 503 Redick Tower, Omaha 2, Neb. CA $302,982. 3 transmission line crossings of Missouri River in Osage, Callaway, Jackson and Clay Counties. Missouri Proj. MO 71A Moniteau. Central Electric Power Co-operative, 400 E. High St., Jefferson City, Mo. Bids Aug. 19.

South Dakota—T. H. Victors Co., Minot, N. D. LB. $593,803. 540 mi. rural distr. lines, 17.65 mi. conductor stringing on existing lines, Haakon, Jackson and Washabaugh Counties. West Central Electric Co-operative, Murdo, S. C.

So. Dak., Sioux Falls—Sioux Falls Constr. Co., Box 773, Sioux Falls, S. D. CA, general contract; C. J. McDermott, Sioux Falls, S. D., CA, mechanical contract; Electric Supply Co., 217 N. Phillips St., Sioux Falls, S. D., CA electric contract 2 story, bsmnt., 99x 142 ft. newspaper PLANT Minnesota Ave. and 10 Sts. Sioux Falls Argus-Leader, 210 W. 9 St., Sioux Falls, S. D. Total approx. $600,000. Bids Aug. 26.

Tennessee—Tennessee Valley Auth., New Sprankle Bldg., Knoxville, Tenn. Owner Builds. $500,000. electric substation, Clarksville.

Tex., Roma—Schwager-Wood Corp., 8024 SW 25 Ave., Portland, Ore. CA $73,982. Schedules 3, 4 and 10, two 115,000 volt selector-type switches, twenty-eight 115,000 volt disconnecting switches, nine 7,500 volt disconnecting switches, for switchyards United States and Mexican sides, Falcon Dam and Power Plant, Spec. D 4646. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids May 22, awarded July 15.

Washington — R. C. Hughes, 4020 Latawah St., Spokane, Wash., CA. $78,765, clearing, constr. South Tacoma Tap 230 kv 6.2 mi. transmission line, Pierce Co., Bonneville Power Admin., 827 N.E. Oregon St., Portland, Ore. Bids Aug. 20.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Ga., Atlanta—The Massell Companies, 40 Pryor St. S. W., hotel, $2,500,-000; office bldg., $2,100,000.

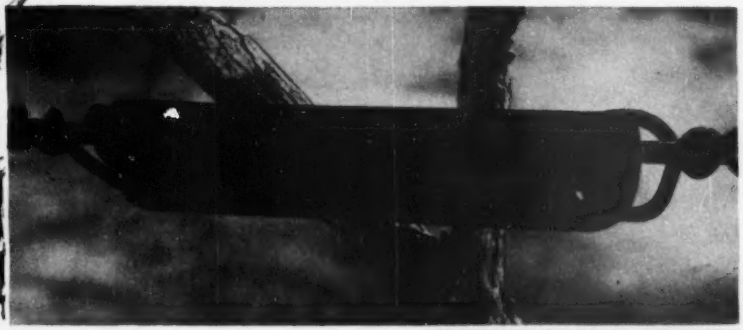
Ill., Chicago—North Michigan Avenue Assoc., 664 N. Michigan Ave., Zone 11, 5 garages at various locations on near North Side. $6,500,000. De Leuw Cather & Co., 150 N. Wacker Dr., Zone 6, consult. engrs.

Ill., Chicago — 225 Chestnut Street Bldg. Corp., c/o Geo. S. Lurie Co., 120 S. La Salle St., Zone 3, plans by Leo S. Hirschfield, 327 S. La Salle St., Zone 4, 23 story apartment, 225 E. Chestnut St. $3,000,000.

Mich., Detroit—Detroit Medical Hospital, John F. Ivory, pres., 7850 E. Jefferson St., 11 story, brick, steel, concrete hospital, Jefferson and Seminole Sts. $5,000,000.

Tex., Dallas—Statler Hotels, Inc., 7 Ave. and 33 St., New York, N. Y., 900-room hotel, $15,000,000. Holabird, Root & Burgee, 180 N. Wabash St., Chicago, Ill., consult. engrs.

LINEMAN—SPARE THAT TREE!

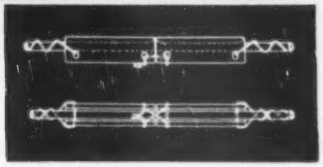


PINCO TREE INSULATORS provide maximum, permanent protection for tree, wire and service

Up until Pinco Tree Insulators were introduced, beautiful trees such as these majestic Eucalyptus were becoming daily casualties to ever-expanding power lines. Today, thanks to Pinco foresight and pioneering, Pinco Tree Insulators provide the answer to an old and troublesome problem—permitting utilities to string lines *safely* without marring the beauty of cherished landmarks.

The super-hard, super-smooth surfaces of Pinco Tree Insulators resist the abrasive action of trees, branches or other obstructions. And their mechanical strength is such that, on test, they withstand repeated side hammer-blows up to 100 inch pounds without failure! The porcelain itself . . . produced by the Pinco Wet Plastic Process, guarantees high dielectric quality.

In service, Pinco Tree Insulators have conclusively proved their superior efficiency, durability and economy. Many users state that they *save their original cost every year!* May we submit facts, figures and samples to prove this point to *you?*



THE PINCO TREE INSULATOR
is attached directly to the wire it protects . . . unaffected by the sway of limbs, remaining permanently in place. It may be used singly or in multiple; the diagram above shows the method of attaching two or more to the conductor.

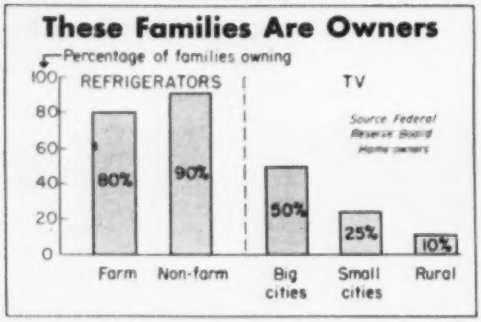
PINCO INSULATORS
RIGHT ON THE JOB

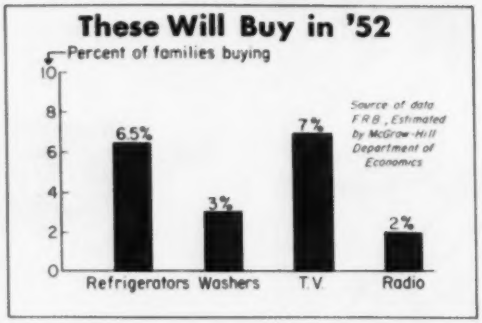
THE PINCO TREE INSULATOR NO. 3600
for power and light primary and secondary, power and light services, etc. (cable up to 1" diameter) . . . is made in 12", 14" and 16" lengths. Other models are available for heavier or lighter service.
U.S. Patent No. 2,361,109

The Porcelain Insulator Corporation
LIMA, NEW YORK

Sales Agents: Joslyn Mfg. & Supply Co.
Offices in Principal Cities

ELECTRICAL BUSINESS OUTLOOK





Who Owns the TV Sets and Refrigerators?

Who owns the television sets that manufacturers have been producing in ever increasing number? Are they city or rural dwellers? Who owns the refrigerators? Are they years old or comparatively new?

Answers to these and similar questions about the ownership of these appliances are to be found in the August issue of the "Federal Reserve Bulletin." The information is based on the results of the Board of Governors' 1952 Survey of Consumer Finances.

Actual and Planned Purchases of Household Appliances

Type of purchase	Actual Purchases 1951	1950	1949	Planned Purchases 1952	1951	1950
Radios:						
Percentage of spending units	5.3	5.7	7.7	1.2	2.7	2.2
Number of spending units (millions)	2.8	3.0	4.0	0.6	1.4	1.1
Median expenditure	$50	$45	$55	$40	$100	$100
Television sets:						
Percentage of spending units	12.0	11.8	5.6	5.6	5.1	6.6
Number of spending units (millions)	6.3	6.1	2.9	2.9	2.6	3.4
Median expenditure	$300	$300	$330	$300	$250	$260
Refrigerators and Home freezers:						
Percentage of spending units	11.7	13.4	13.1	4.6	5.1	6.0
Number of spending units (millions)	6.2	7.0	6.8	2.4	2.6	3.1
Median expenditure	$265	$270	$260	$280	$290	$245
Washing machines:						
Percentage of spending units	5.7	6.4	5.1	1.8	2.7	3.0
Number of spending units (millions)	3.0	3.3	2.7	1.0	1.4	1.6
Median expenditure	$185	$175	$145	$190	$200	$165

Consumers are now purchasing new models of household appliances to replace postwar as well as prewar acquisitions and are continuing to enlarge their stocks of new types of appliances such as TV sets, clothes dryers, and dishwashers. For a standard item such as mechanical refrigerators, ownership appears to have been quite general in early 1952. For a new item such as a TV set ownership is far from general, despite substantial purchases.

Ownership of TV Sets Is Growing . . . Ownership of TV sets increased rapidly after volume production was first attained in 1949. By early 1952 about a third of the spending units had acquired one. Because most stations are in large cities, more city residents own sets (See table).

There are two other factors affecting TV set ownership that seldom apply to ownership of other appliances. 1. Families with children are more likely to have a set than those without. 2. Families headed by a skilled or semi-skilled worker are more likely to have a set than those headed by self-employed or managerial employees with a higher level of income.

Ownership of Television Sets, Early 1952
(Percentage distribution of spending units within groups)

Group characteristic	Number of cases	Owns %	Does not* %
1951 Income before taxes			
Under $1,000	278	4	94
$1,000-$1,999	359	10	89
$2,000-$2,999	454	17	82
$3,000-$3,999	482	32	67
$4,000-$4,999	424	47	52
$5,000-$7,499	490	54	45
$7,500 and over	333	59	40
All spending units	2,820	30	69
Place of residence of spending unit:			
Metropolitan area	1,051	51	48
City, 50,000 or more	480	26	72
City, 2,500-50,000	502	23	76
Town, under 2,500	420	21	77
Open country	367	8	90

* Total is less than 100% because of insufficient information.

Ownership of Refrigerators . . . Ownership of refrigerators is somewhat distorted by the fact that rented apartments and homes in urban areas usually have a refrigerator included as a part of the installed equipment. In early 1952 nine out of ten home owners owned refrigerators against six out of ten renters. Eight of ten farm owners had refrigerators but only five of ten tenant farmers had them. Of every ten refrigerators six are postwar models, and three are less than three years old. Purchase of used refrigerators was small.

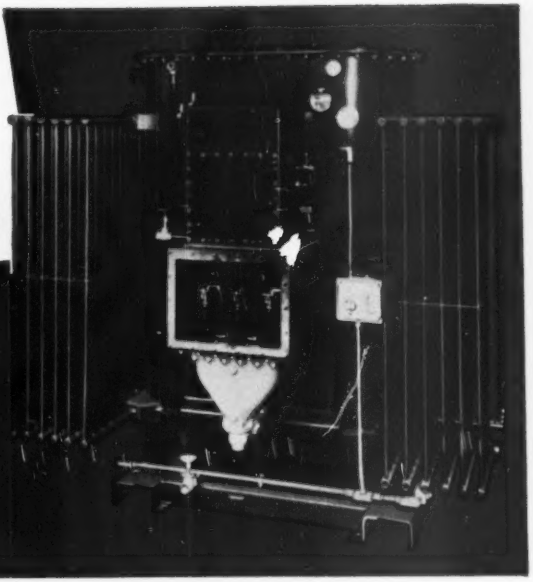
Ownership of Refrigerators Within Income Groups
(Percentage distribution of spending units)

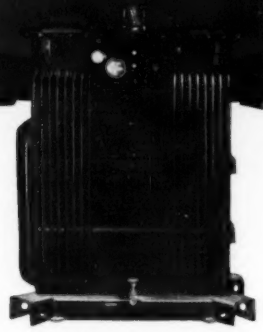
Group characteristic	Number of cases	% Owns	% Does not own*
Under $1,000	278	34	66
$1,000-$1,999	359	51	49
$2,000-$2,999	454	64	35
$3,000-$3,999	482	75	23
$4,000-$4,999	424	86	14
$5,000-$7,499	490	86	13
$7,500 and over	333	86	14
All spending units	2,820	68	31

* Total is less than 100% because of insufficient information

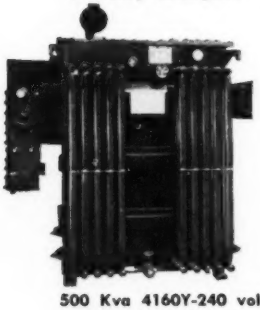
Planned purchases of the various appliances are indicated in table in column 1. It can be seen that purchases are usually greater than intended. If this is true this year, this will be another good year for the appliance industry.

MOLONEY *Askarel* TRANSFORMERS





500 Kva 4800-240 volt, three-phase, sixty cycle, Askarel Load Center Transformer with throats for connection to primary and secondary switchgear.



500 Kva 4160Y-240 volt, three-phase, Moloney Askarel Transformer

for SAFETY and ECONOMY!

Where Non-inflammable Transformers are required—either Indoors or Outdoors

Because Moloney Askarel Transformers are cooled and insulated with Askarel, a non-inflammable liquid, they are suited to use in applications where oil-cooled transformers would be hazardous to life and property.

Askarel Transformers are ideal for indoor installations. However, their weatherproof construction permits outdoor installations such as in mines, on roofs, in street and sidewalk vaults for a-c network systems, etc.

Askarel Transformers effect savings in installation costs because expensive fireproof vaults are not necessary. Because the transformer can be located at the center of the electrical load, expensive runs of secondary copper are eliminated. This also provides improved voltage regulation.

MEDS-28

MOLONEY ELECTRIC COMPANY

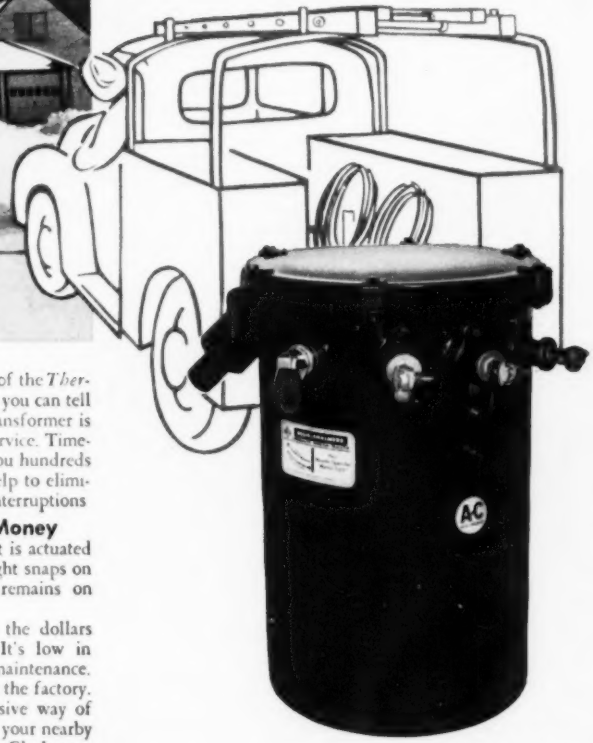
Manufacturers of Power Transformers • Distribution Transformers • Load Ratio Control Transformers Step Voltage Regulators • Unit Substations

MOLONEY ELECTRIC = BETTER PERFORMANCE, GREATER RELIABILITY, LESS MAINTENANCE

SALES OFFICES IN ALL PRINCIPAL CITIES • FACTORIES AT ST. LOUIS, MO. AND TORONTO, ONT., CANADA

A Glance tells you it's Overloaded

Read How the *Thermalite* Indicator Can Save You Money in Transformer Protection and Utilization in Any Season . . . for Any Climate



WHEN THE BRILLIANT SIGNAL LIGHT of the *Thermalite* overload indicator flashes on, you can tell — at a glance — that your distribution transformer is overloaded. There is no interruption of service. Time-saving visual detection like this can save you hundreds of man-hours on costly surveys. It will help to eliminate transformer burnouts and service interruptions

Important Advantages Save Money

Simple in operation . . . the warning light is actuated by a thermal device in the top oil. The light snaps on during excessive overload periods and remains on until turned off by an external handle.

The *Thermalite* indicator will stretch the dollars you spend for transformer protection. It's low in original cost, dependable and requires no maintenance. It is engineered, calibrated and installed at the factory.

Learn more about this visual, inexpensive way of detecting transformer overloads by calling your nearby A-C sales representative or write Allis-Chalmers, Milwaukee 1, Wisconsin. A-3793

Thermalite is an Allis-Chalmers trademark.

The ***Thermalite*** *overload indicator is available on distribution transformers 100 kva and smaller, 15 kv and below.*

ALLIS-CHALMERS